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Crown Zellerbach Corp. Shows Big Expansion

Report for Second Fiscal Year of Unified Operation Ended April Shows Net Income of $6,094,646, After Preferred Dividends and Other Charges Equivalent to $1.43 Per Share On Common Stock—During the Year Approximately $11,500,000 Was Added To Investments in Securities, Timberlands and Plants Says President

PORTLAND, Ore., July 11, 1930.—The Crown Zellerbach corporation for the second fiscal year of unified operation ended April 30, 1930, reports net income of $6,094,646, equivalent after preferred dividends of $1,512,963 and minority stockholders' interest totaling $1,720,329, to $1.43 per share on the 1,991,680 shares of common stock outstanding at the end of the period, according to announcement to the *Daily Journal of Commerce*. This compares with net income of $6,379,412 earned in the fiscal year ended April 30, 1929, equal after preferred dividends and minority stockholders interest to $1.72 per share on the 1,991,608 outstanding common shares. Adjusted earnings for 1928 amounted to $1.55 per share on the same basis.

Expansion Program Large

Profit before depreciation, depletion, interest and taxes amounted to $12,366,689 for the fiscal year ended April 30, 1930, an increase of $316,696 over the $12,049,993 for the preceding period. Deductions for depreciation increased $640,219 and depletion $85,582.

The larger write-offs for depletion and depreciation together with increased preferred dividend requirements and interest charges on capital expended to finance the comprehensive expansion program, combined to reduce the net available for the common. Results of these capital expenditures, made in the acquisition of additional plants and improvement of existing manufacturing facilities, will be shown in future earnings. Meanwhile, gross income is steadily gaining.

President's Report

In the annual report to stockholders, President I. Zellerbach commented as follows: "During the year approximately $11,500,000 was added to our investments in securities, timberlands and plants, consisting in respect to the latter of additions to the Camas and Ocean Falls plants under the construction program referred to in the last annual report, substantial additions and improvements to the Carthage plant and the completion of the construction of the Port Townsend plant, which is now operating at capacity. Bonds of subsidiary companies aggregating $858,000 were redeemed and cancelled and $291,000 was applied on account of deferred payments on timberland purchases. We have cut 224,000,000 feet of timber and have acquired 551,000,000 feet, so that our timber holdings have been increased by 327,000,000 feet. These capital expenditures were financed in part from the proceeds of the new issue of $10,000,000 6 per cent gold debentures of Crown Zellerbach corporation. Our present plant expansion program will be brought to a conclusion during the early part of the present fiscal year and our present plan is to concentrate on the development and expansion of our markets both on the Pacific Coast and in the East."

Assets of $20,452,245

Balance sheet of Crown Zellerbach corporation shows current assets of $20,452,245 as against current liabilities of $8,191,001, a ratio of approximately 2½ to 1. Assets totaled $118,580,848, April 30, 1930, as against $109,190,568 for the end of the previous year.

Trimmed Sheet Made Standard

WASHINGTON, D. C., July 9, 1930.—The subject of size as applying to trimmed or untrimmed papers came up before the Conference of the International Standards Association held in Paris recently according to a report from Trade Commissioner Thomas Butts, at Paris.

The Netherlands, supported by Poland and by the personal opinion of the Italian and French delegates held that sizes specified should apply to the untrimmed sheets. The German preference was to leave the question of the untrimmed sizes to the paper manufacturers, holding that the most important thing is to have sheets, forms, books, and other trimmed sheets, conform to uniform measurements. Other countries than those mentioned above were also in favor of considering the standard sizes as trimmed sizes, and a recommendation to this effect was made, with the addition that the tolerance should be held as small as possible.

Shipping News Print Over Barge Canal

FORT EDWARD, N. Y., July 14, 1930.—Traffic over the barge canal is the highest in years and 1930 promises to smash all previous tonnage records. A fleet of barges carrying news print paper made a record trip from Whitehall to Troy through the Champlain waterway this week in twenty-one hours, which is regarded as one of the quickest movements on record for the canal. The vessels carried 863 tons and were bound for the Metropolis. Shipments of pulpwood over the barge canal to mills in Northern New York are also running far ahead of last year as are other products used by the paper industry.

Federal Board Mills Decrease Stock

PORTLAND, Ore., July 11, 1930.—Federal Paper and Board Mills, 351 Front street, Portland, decreased capital stock from 5000 shares no par, and $200,000 shares preferred, to 250 shares of no par common.

Pennsylvania Paper Mills Advance Operation

Increased Volume of Orders Reported By Manufacturers of Practically All Standard Grades of Paper—Book Paper, Board and Corrugated Plants Have Increased Production Since July 1—Glassine and Grease Proof Products Are More Active

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., July 14, 1830.—Though the majority of paper houses report an improvement throughout the early days of July and indications point to growing demands over the previous month, there are a few spots in the trade which create distrust. Despite the turn for the better, the trade is confronted with keen competitive bidding for orders, a factor which makes it unprofitable for both manufacturers and dealers involved in meeting the many sided question of values and reliability. While inventory has not been completed, in many of the dealers reports of the first half of the year the totals, as unofficially reported, will show a slower trend throughout the period, with considerably less profit on volume of shipments from the local merchants warehouses over the comparative period of 1929. This is believed to be due to the unsettled paper markets that prevailed throughout the period, when purchases were held up owing to fluctuations in quotations.

Inventories show that there is not a large volume of papers held over, owing to the cautiousness which has dominated the paper trade during the past few months, when the merchants declined to buy until they were assured that no further inroads would be made on prices and these paper dealers are now ready to buy for the coming seasonal activity, which has just about begun and which no doubt will be of slow rising throughout the next two months, growing in volume with the closing of the vacation season, as many believe. Some offerings have appeared from stale stocks but the normal seasonal dumping has not taken place, and leaves the trade hopeful that firmer markets will prevail as restocking takes place.

Seasonally active summer commodities in the paper line were slightly more active as the holidays quickened demand, and rush shipments at the last minute to seashore and other resorts livened the shipping departments. There were also growing orders from the mercantile trade in the past week and that of the immediate holidays, where wrapping papers, packing boxes, tissues, and grades used by the food trades, were in frequent small lot orders.

Manufacturers of all lines of paper goods in this section report growing orders but at values that are made to meet competition and on small lot types. This rather unsettled situation, however, is offset by the growing number of inquiries for larger purchases which may materialize in the near future. The inquiries for larger volume shows that some thought is being given to future stocking in many lines of paper that have been rather draggy for months, and standard grades needed in both the fine and wrapping paper branches. Mills have cautiously advanced operations to take care of immediate needs but do not plan to broaden production until assured that there will be steadier paper and business conditions. Book paper, paper board, and corrugated mills, are among the manufacturers increasing their schedules since July 1. Glassine papers and grease proof products have been more active and mills have a fair volume of orders on hand of the small lot type purchases made by individual firms. In these lines competition is keen and is reported to have given the buyer his own way in making values.

Bags have been growing firmer as the kraft market shows strength and converters have advanced prices about five per cent in recent weeks. However, competition is keen as ever among the smaller converters in the city trade. The nationally prominent bag producers are holding firmly to their quotations and are not materially affected by the smaller local converters. Cellophane wraps and cellophaned window bags are firm and are among the few trade commodities that show considerably larger volume of production throughout the first half of the year, with even better markets as the summer season advances.

Paper stocks of the better grades are in demand and show the improvement among manufacturers and if inquiries are any criterion on which to judge the near future orders will grow accordingly in volume of requirements needed for the higher priced grades. Among such active lines are white shavings, writings and ledgers, and book papers that have been draggy so long are now again being sought in growing volume, with little of the better grades in accumulation. Prices of paper stocks hold despite the growth of business and have not risen above the lower levels of springtime.

Corrugated Paper Stock In Demand

In recent months there has been promoted a line of paper stock that has proved of great value in demand of steady proportions. It is corrugated waste paper, which has been sought freely by manufacturers of boards and corrugated papers. These papers are now nationally recognized as profitable merchandise and such large houses as the Penn Paper and Stock Company, 240 North Front street, have found a market for all available gatherings and accumulations. This item of waste paper is now considered in a separate class and is selling at from 50 to 60 cents per hundred to the mills. Heretofore it was included in mixed commons, but for the past few months has been packed in sorted bales apart from the usual common.

Paper Industry to Assist Franklin Memorial

Having definitely taken steps towards interesting the trade in the promotion of the permanent paper exhibit to be installed in the Benjamin Franklin Memorial, to be erected at a cost of more than $6,000,000 on the Parkway in this city and for which ground recently was broken, the American Paper and Pulp Association last week through T. J. Burke, Director of the Cost Department, conferred with the Philadelphia representatives of the Memorial on the Paper Committee at a luncheon at the Benjamin Franklin Hotel. Those represented on the Paper Committee of the Memorial are Norbert A. Considine, of the Paper House of Pennsylvania, George W. Ward, of the D. L. Ward Company, and Grellet Collins of the Dill and Collins Company, who was not able to be present owing to recent illness from carbuncle. At the luncheon was Dr. Howard McClenahan, head of the Franklin Institute, a scientific institution with a world wide reputation for its research and development of many sciences and with a notable library assembled throughout its many years of history and which will be custodian of the Franklin Memorial Building and direct the erection of its industrial exhibits, the first elaborate displays of United States industries to be permanently featured under a single roof as a museum to the commercial development of the nation and which will attract thousands annually to the shrine in educational pilgrimages of the country's manufacturing resources. During the luncheon Dr. McClenahan reported on the scope of the exhibits which will be gathered in the Memorial, outlining the requirements for a worthy paper display and memorial to the industry, and this will be in turn given consideration by President Sydney L. Willson, of the American Paper and Pulp Association, at whose request the matter was taken up in the conference last Tuesday by Dr. Burke, who substituted for General Manager Jesse Neill, who was unable to be present. The conference was held with a view to form an Ad-

visory Committee of the American Paper and Pulp Association which will secure the interest of the trade and promote the erection of a worthy exhibit of the paper industry. This matter will be taken up at a meeting of the association in the near future when formulation of plans will give tangible results of the program for the exhibit of national scope.

Crane Co. Celebrates Locally

Celebration of the 75th Anniversary of the Crane Company's business history in the Philadelphia headquarters of the company was signalized with a picnic held at Chalfont, Bucks County, last week, when M. D. Robinson, manager of the local branches and T. C. Fleming, his assistant, provided a program which was replete with diversions and appropriate recognition of the passing of the three quarters of a century of its existence. There were more than 500 local executives and employees in the celebration who were provided with luncheon and dinner by caterer service and who joined in the many sporting and outdoor events throughout the day. The local staff also participated in the Chicago celebration when 300 veterans in the service of the Company were honored—all having served from 25 years to 60 years. The group of honor men was headed by James N. Wrath, Jr., who is 74 years old, and who has been with the company 60 years, and followed by Peter Botham, who is 88 years of age and has been connected with the company 57 years as shop superintendent and who refuses to retire. The Philadelphia celebration was one of the many carried out in various parts of the world including Rangoon, Burma, Paris, London, Colombo, Ceylon, Brazil, Mexico, Cuba and all cities in the United States and Canada where Crane branches and offices are located, handling more than 33,000 items manufactured by the company in its shops employing 20,000 workers. The Crane Company produces valves, fittings, fabricated pipes, heating and plumbing materials and has a wide patronage among paper mills and paper mill equipment manufacturers.

Paper Trade Associates On July Vacations

Looking forward to improving demands for paper in August the majority of paper dealers have taken to early vacations which began with the Independence Day celebration and which will in most cases last until the final week of the current month. Among the trade associates now in the northern frontier and in Canada, are Charles Megargee Levis, of Curtis & Bros., who is in the Adirondacks; Clark H. Morian, of the Cherry River Paper Company, who is touring Canada and Newfoundland, after a visit to Richwood, Va., and inspection of the Cherry River Company Mills; Leonard Raymond, of Raymond and NcNutt, who is rounding out his vacation in Quebec and the St. Lawrence district; Leo Supple, of the Whiting Patterson Company, traveling through New England resorts; Grellet Collins, of Dill and Collins, who has returned from a fortnight trip in the northern parts of Canada following an illness from carbuncle on the neck.

Hammersley Mfg. Co. Moves Offices

The Philadelphia offices of the Hammersley Manufacturing Company have been removed from the second floor of the Drexel Building to Room No. 878 where the Quaker City sales department is to be located under management of William H. McKeever, who directs the sales of the line of waxed papers made by the concern at Garfield, N. J.

Paper Supply Houses At Box Makers Convention

Philadelphia paper supply dealers who cater to the box manufacturing industry will have exhibits at the annual convention of the Central Division of the National Paper Box Manufacturers Association to be held at the new Abraham Lincoln Hotel, at Reading, Pa., July 23 and 24. Those from Philadelphia attending will be: Howard Marcus, of the A. S. Datz Company; Louis Shulman of the Louis Shulman Company, which recently acquired the Datz Company; Charles Matthias and Walter Matthias, Matthias and Freeman Company; William Bolebroke, Louis DeJonge Company; L. E. Supple, Whiting Patterson Company; Leon Beck, Charles Beck Paper Company; and Philip Rudolph, of the firm bearing his name.

A. B. Kehr American Legion Delegate

A. B. Kehr, of the Enterprise Paper Company, 3rd and Callowhill streets, has been elected a delegate to the American Legion Convention for the State of Pennsylvania to be held in Harrisburg, Pa., August 20. He will represent the Olney Post, of which he is Past Commander.

Whiting Paper Co. Displays New Papeteries

Entirely new lines of papeteries are shown in the 1930 offerings of the Whiting Paper Company, Philadelphia branch, at 619 Chestnut street, under manager D. F. Coots. The new lines comprise several hundred designs of staple year round sellers and for the holiday specialties. There are a wide range of colors and new boxes in fancy finishes and attractive and modern designs that make worthy gift numbers. While the new lines are now being shown the shipments on the holiday numbers will not be made until October.

Leon Beck In Nova Scotia

Leon Beck, president of Charles Beck Paper Company, 609 Chestnut street, is spending the rest of the month in Nova Scotia and Newfoundland and at the Coast resorts of the northern extremity. He will return to his desk in time for the Central Division of the National Paper Box Manufacturers Association Convention, to be held in Reading in late July.

Rainier Pulp Has Profitable Year

SHELTON, Wash., July 5, 1930.—The Rainier Pulp & Paper Company, for the fiscal year ended April 30, 1930, showed net profits of $479,623.18, according to a report to stockholders by President E. M. Mills. The earnings available for the payment of the $2 preferential dividend on the class A stock is equivalent to $4.79 per share and after payment of the class A dividend the remainder is equivalent to over $2 per share of class B stock.

Conditions during the first few months of the year under review are reported to have been satisfactory, but during the year the market for bleached sulphite pulp declined steadily and the year closed with the poorest bleached sulphite market for several years. In the face of these conditions the company continued to improve its methods of pulp production and also made extraordinary efforts to produce and find markets for pulp suited to special purposes which would command better prices than the ordinary run of sulphite pulps. It is largely due to these efforts that the company was able to show satisfactory earnings.

During the year the company spent $299,214 in plant improvements. The effect of these improvements has been to lower the cost of production and to enable the plant to manufacture special pulps. The benefit of these changes should be more fully reflected in the current years operations.

At the end of the fiscal year inventories amounted to $555,705, as compared with $120,646 at the beginning of the year. The president of the company expresses the belief that these inventories should be materially reduced during the current fiscal year. Reduced cost of pulp production and the development of special pulps are expected to insure the continuance of satisfactory earnings despite the poor present condition of the pulp business.

To Discontinue Misrepresentation

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 16, 1930.—The Federal Trade Commission has entered into a stipulation with a corporation selling paraffin paper containers who will no longer misrepresent itself as a manufacturer so as to imply that it owns, operates, or controls a mill in which are made the products it sells, when such is not the fact. The name of the corporation is withheld from publication.

Australia Raises Import Duty On News Print

Canadian Manufacturers, However, Will Still Have Preference of Approximately $15 Per Long Ton As Against Countries Outside British Empire — Suggested Development of News Print Industry In Alaska Causing Little Uneasiness In Dominion

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., July 14, 1930.—There has been some speculation here as to how the new Australian tariff, raising the import duties on news print and many other articles, will affect news print exports from Canada to that country. Doubts have been set at rest, however, by a cable from D. H. Ross, Canadian Trade Commissioner in Melbourne, stating that Canadian news print will still have a preference of three pounds sterling, roughly $15, per long ton, as against countries outside the British Empire. Under the new tariff which became effective on July 10, the rate on news print under the British preference will be one pound sterling per ton and under the general tariff four pounds. Formerly news print was free under the British preference and three pounds per ton under the general tariff. The other changes to the tariff are not very important to Canada.

The new Budget places a primary tariff of 2½ per cent ad valorem on all imports, whether dutiable or free. This will also be levied on the value of the casings containing the goods as well as on the goods.

In addition there will be a sales tax of 2½ per cent based on the Canadian Act which will be imposed on both imports and local products other than foodstuffs. The sales tax will not be operative until it is brought into effect by proclamation at a later date.

For the last fiscal year Canada exported to Australia news print to the value of $3,790,108 and the year before $3,627,369. Most of this was from the Pacific Coast. The total exports during the last fiscal year from this country to Australia was $16,322,771.

The Federal Report on News Print

Interest is displayed here in the report of the Federal Trade Commission, issued at Washington charging that coercion, by Premiers Ferguson and Taschereau had been responsble for an increase of $5 a ton in the price of news print to Hearst newspapers, and recommending to the Senate that Alaskan mills might be developed to prevent a further price raise.

Both Premier Taschereau and Premier Ferguson have denied using coercion, the latter saying: "I don't know what they're talking about. This government has never coerced anyone. We haven't anything to do with fixing prices. I didn't even know that an increase in price was impending. I have never interfered in these matters of private business."

Col. J. H. Price, president of Price Brothers and Co., remarked when asked about the report, "There is no reason to say that there is a further rise impending in the price of news print.

In the trade generally the suggestion to develop news print mills in Alaska is not regarded with uneasiness. In time this may be done, it is felt, but there are many difficulties to be overcome, and certainly present conditions are not encouraging.

New Brunswick Forests Recovering

New Brunswick this year is enjoying a fourth successive year of exceptional growth in her forests, which are recovering steadily from the inroads of the spruce bud worm which up to 1925 had been serious. A survey of the forest increment since last year is now being made by the Provincial Forest Service which has a part of University of New Brunswick undergraduates at work in the Miramichi watershed.

Good progress is being made in the pulpwood peeling operations by operators in the Province. This phase of the work got under way in May, and will be completed in August.

The 1929 cut is slightly under that of last year largely due to the market conditions. The season's activities are being conducted throughout the province, although the bulk of the cut will be in the north and centre. International Paper Company is buying up large quantities of wood in the south for shipment to its mills in Maine, and Fraser Companies are cutting heavily for their own plants in New Brunswick.

Bathurst Power Co. Annual

At the annual general meeting of the Bathurst Power and Paper Company, held at Bathurst, N. B., the same board of directors was re-elected as follows: Brig-Gen. J. B. White, A. J. Nesbitt, P. A. Thompson, G. H. Montgomery, H. J. Webb, A. E. McLean, J. B. Woodyatt. After the annual meeting the following officers were elected at a directors' meeting: President, Brig.-Gen. J. B. White; vice-presidents, A. E. McLean and H. J. Webb; treasurer, H. J. Webb; assistant treasurer, Geo. A. Schryer; secretary, S. B. Bond.

Russian Pulpwood Arrives for I. P. Mills

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., July 14, 1930.—The first consignment of Russian pulpwood for mills of the International Paper Company reached here this week on barges from New York City. Approximately 6,000 tons comprised the cargo and incidentally started the port terminal on its largest tonnage movement as the contract calls for other deliveries involving a total of over 300,000 tons.

There have been rumors that the entire consignment might be involved in the action by government officials yesterday in stopping the importation of alleged convict-cut timber and officials of the Albany Port Commission wired to Washington asking an investigation of the situation as to the effect on the vast tonnage under contract to the International Paper Company. Representatives of the company informed the local authorities that for the time being the shipments of Russian pulpwood are not affected by the new ruling and the unloading of the first cargo was accomplished without government intervention.

The International Company was represented at a conference held this week with government officials at Washington at which an appeal was made by the Amtorg Trading Corporation and Dutton Lumber Company that the new ruling be set aside inasmuch as it has tied up shipments at Poughkeepsie and Providence. The federal statute is said to prohibit importation of products made by convict labor and there is a possibility that the consignments to the International Company may become involved in the controversy with the two commercial organizations.

To Build New Dam at Hudson Falls

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., July 14, 1930.—Indications that construction of the new dam in the huge power development planned by the New York Power and Light Corporation here would be started soon was forecast this week when a number of residents occupying sites near the mill of the Union Bag and Paper Corporation were notified to vacate. The tenements are said to be in a direct line with the proposed new dam and will be razed. Plans all call for the removal of the dam at No. 5 mill and it is understood that walls will be constructed along the river for a considerable distance in order to hold the gigantic lake which will be formed with the completion of the project.

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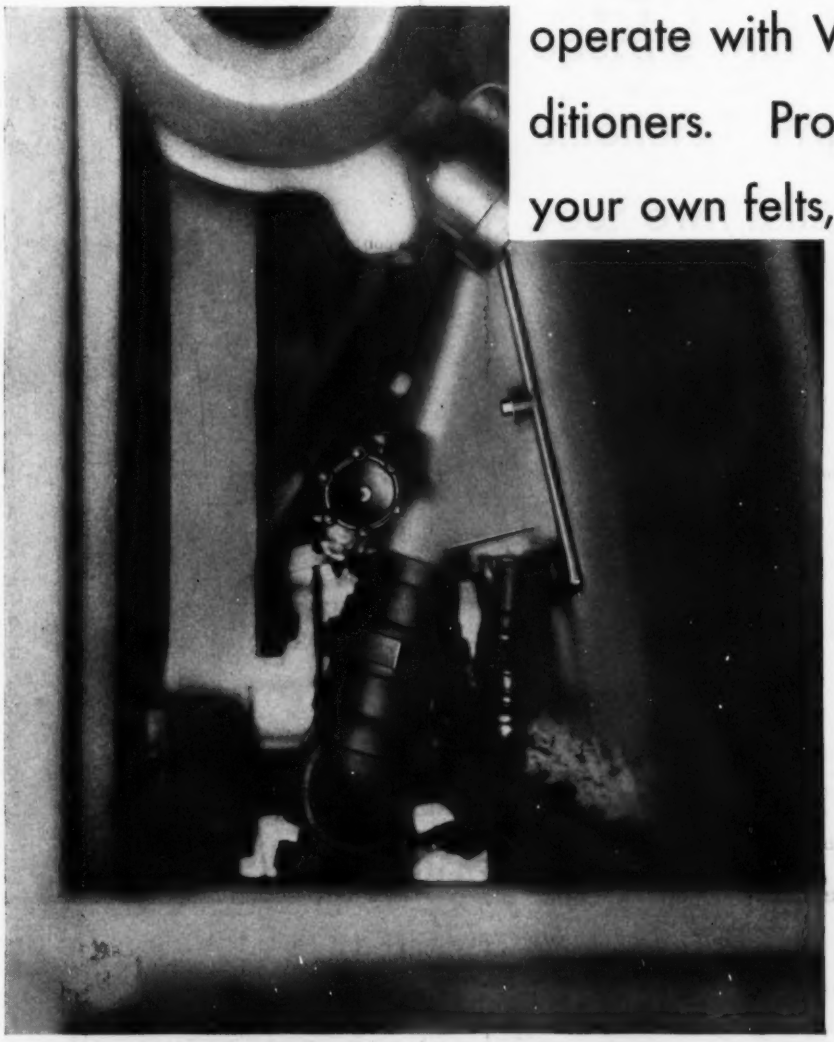

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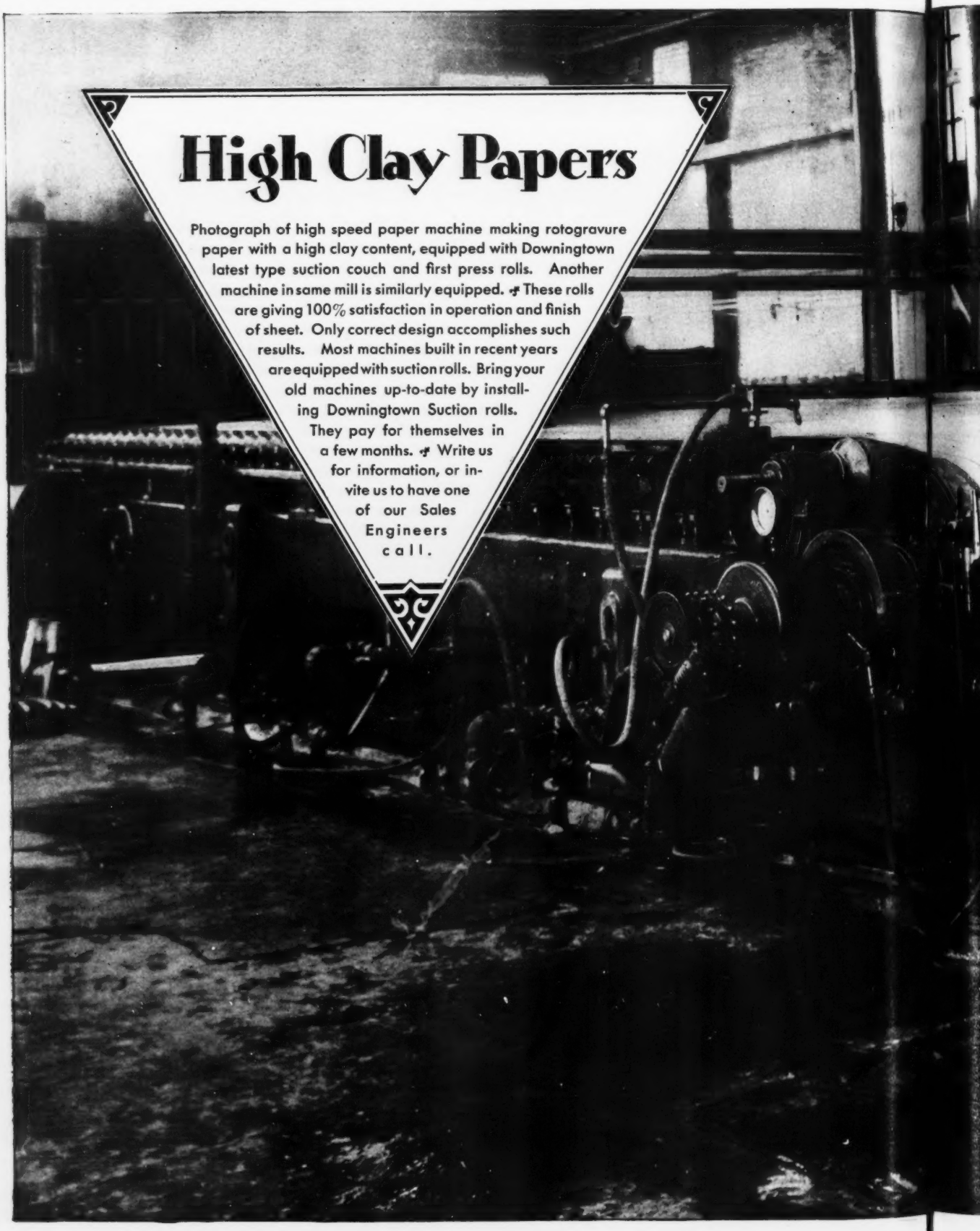
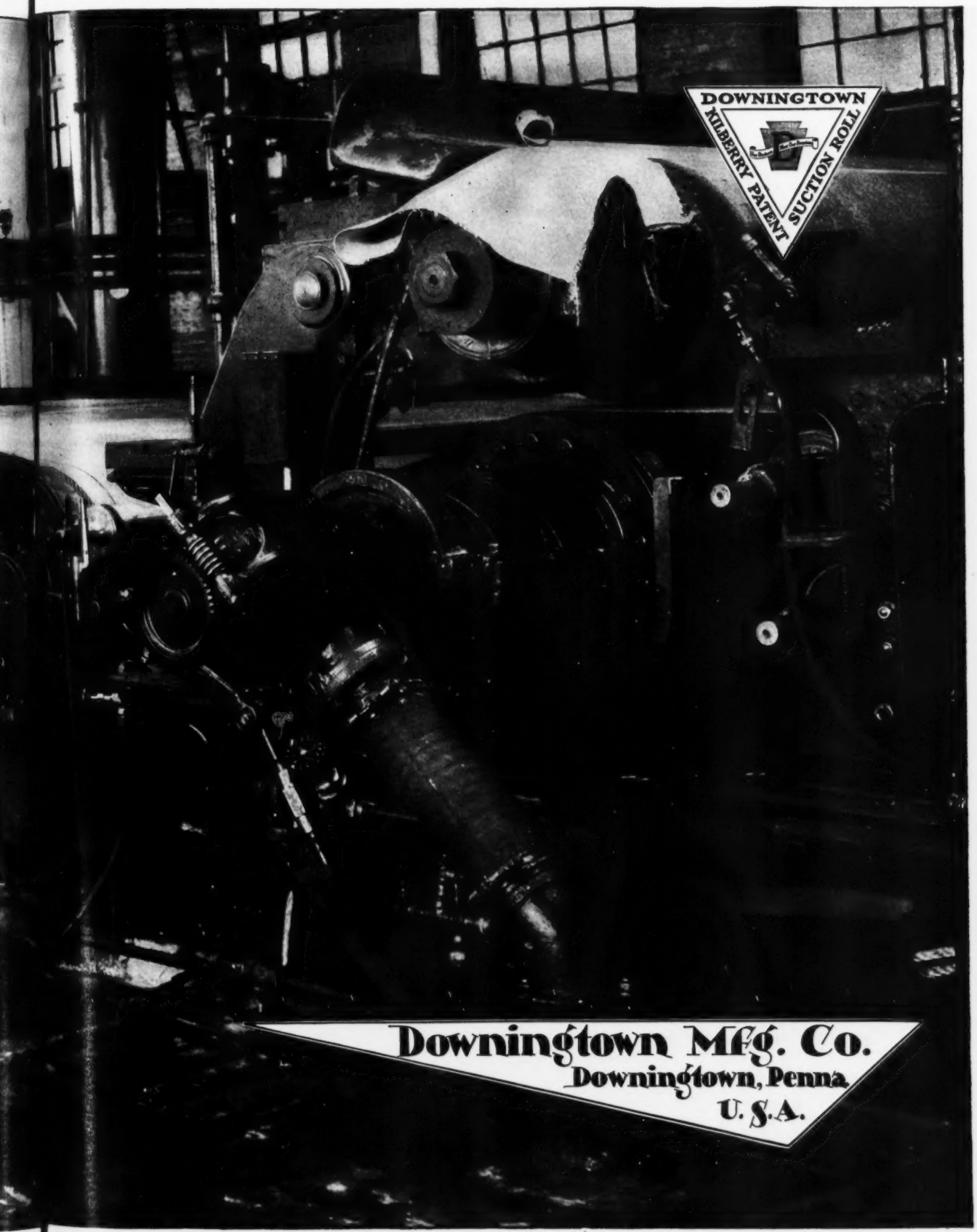

High Clay Papers
Photograph of high speed paper machine making rotogravure paper with a high clay content, equipped with Downingtown latest type suction couch and first press rolls. Another machine in same mill is similarly equipped. These rolls are giving 100% satisfaction in operation and finish of sheet. Only correct design accomplishes such results. Most machines built in recent years are equipped with suction rolls. Bring your old machines up-to-date by installing Downingtown Suction rolls. They pay for themselves in a few months. Write us for information, or invite us to have one of our Sales Engineers call.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Tomahawk Kraft Mill Unit Nears Completion

Construction of New Building and Installation of Paper Machines Will Probably Be Finished By Autumn—Approximately $750,000 In New Capital Raised to Finance Plant Improvements—Past Year's Record Excellent Despite Competition

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., July 14, 1930.—Rapid progress is being made in building the new paper mill unit for the Tomahawk Kraft Paper Company, Tomahawk, Wis., and present indications are that the building will be completed and the paper machine installed by fall. New specialties in the kraft line will be manufactured.

Progress of the expansion was revealed at the recent annual meeting of the company. Approximately $750,000 in new capital has been raised to finance plant improvements and the new unit, and the outlook is very promising. The last year was an excellent one despite increasing competition. A. L. Kreutzer was re-elected president, and the remaining officers and directors also were re-elected. John F. Ross is vice president, S. B. Bugge, vice president and general manager, D. C. Everest, secretary-treasurer, and I. M. Carney, assistant secretary-treasurer.

Milwaukee Paper Box Plant Expansion

About 30,000 feet of additional factory space in adjacent buildings has been leased by the Schulz Shoe Box Company, of Milwaukee, according to W. B. Rehnquist, vice president. Production will be increased 25 per cent at once and will bring the monthly shipments up to 600,000 cartons. About half of this output is sold to shoe factories in the Milwaukee district.

International-Newport Chemical Corp. Formed

Consolidation of the International Printing Ink Corporation with the dyestuffs and chemical division of the Newport Company, Carrollville, Wis., is declared operative, according to A. A. Schlesinger, president of the Newport company. The set up includes a capitalization of $25,000,000, and the new name will be the International-Newport Chemical Corporation. Action of the reorganization committee in effecting the merger is subject to the approval of the stockholders of the two companies. It is understood that sufficient stock has been deposited for the exchange to assure the consolidation.

The plan will be carried into effect through the acquisition by the International of all the stock of the Newport with the new corporation to acquire all the business and assets of the dyestuffs and chemical divisions of the Newport company. A subsidiary of the new corporation will be formed to carry on the business of International Printing Ink. Newport will retain and continue to operate its wood distillate division, which includes plants at Pensacola, Fla., Bay Minette, Ala., and DeQuincy, La., the entire common stock of the Newport Turpentine and Rosin Company, and General Naval Stores, Inc., and 50 per cent stock interest in the Armstrong-Newport Company. Greater expansion and substantial economies are expected to result from the merger.

Hindu Arrested for Threats to Bomb Box Plant

Threats to bomb the plant of the Feldman Paper Box Company, of Madison, Wis., led to the arrest of Raymond Nathoo, a Hindu formerly employed there. He wrote a letter to Jacob Feldman, president, demanding $10,000, declaring that Chicago gangsters would destroy property and take life if it were not forthcoming. The man was sent to prison.

Paper Mill Worker Killed At Mosinee

The first bad accident in some time accurred at the Mosinee Paper Mills Company, Mosinee, Wis., last week. George Hoard, a 31-year-old employee, fell 70 feet from the top floor down an elevator shaft. He was not discovered for some time, because nobody saw him fall. Death was believed to be instantaneous.

W. N. Brunaugh Dead

Announcement is made of the death of William N. Brunaugh, sales manager of the Milwaukee Lace Paper Company, Milwaukee, Wis. He was 47 years old and died following an operation for appendicitis. He came to Milwaukee four years ago to take up the management of this department. He was a member of the Milwaukee Sales Managers Association. The survivors are a widow, one son and one daughter.

Chip Board Rates From Watertown District

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., July 7, 1930.—The New York Development Association has just received the recommendation of the examiner for the Interstate Commerce Commission in the case of the Hinde & Dauche Paper Company which was filed August 29, 1928. The development organization intervened in behalf of the paper company and while it is not known yet whether the recommendation will be adopted it is nevertheless of considerable interest to the paper industry in Northern New York. The examiner recommends that rates on chip board from the Watertown district shall not exceed rates from the city of Syracuse to the same destinations. Inasmuch as these rates heretofore have been the same as those from the city of Boston to the Middle West this is the most encouraging statement that has come from official sources in some time.

If the report of the examiner is adopted it will mean a reduction ranging from eight to twelve cents per one hundred pounds to destinations west of Buffalo. The examiner also recommends that the Hinde & Dauch Company be allowed reparations amounting to the difference between the old rate and the proposed new rate on all shipments made from the Watertown plant since August 28, 1925. The Development Association was represented in this case by Joseph A. Quinlan, who gave valuable testimony at several hearings.

Williams Size & Service Corp. Formed

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., July 14, 1930.—A new concern to be known as the Williams Size and Service Corporation has been organized here with Frank M. Williams, prominent consulting engineer, as the principal officer. The incorporation articles show that the company has been formed for the purpose of manufacturing and distributing compositions for the treatment of cellulose and textile fibers. The capitalization is placed at $500,000 and is divided into 5,000 shares of common stock with a par value of $100 each. Other stockholders include Mrs. A. B. Williams, Dexter B. Williams, Parker Harrison and Harrison Shaler.

For many years Mr. Williams has played a prominent part in the chemical division of the pulp and paper industry and his advice has been sought at various occasions by numerous concerns in this country and Canada. He has been head of the Williams Apparatus Company, in this city, which turns out machinery for testing the strength of paper, etc., and it is understood that he will continue these connections. The size to be produced by the new firm was perfected by Mr. Williams and is used considerably in the treatment of paper in order to reduce its absorbency and render a smoother finish.

INTIMATE CONTACT WITH

HUNDREDS OF BEATER PROBLEMS

There are almost as many different beating problems as there are mills. Because very seldom do two mills have identically the same kind of stock to treat and the same conditions under which to operate.

During the decades we have been building various types of beaters we have come in intimate contact with hundreds of different beater problems and have amassed a wealth of data and experience which enables us, today, to make installations capable of doing the required beating job in the most satisfactory manner. Hence, the reputation and success of "Valley" Beaters.

Let us send a "Valley" representative to talk over your beater problems with you. He will not be a mere salesman. He will be a highly versed, technical paper man who, you will find, can talk intelligently and helpfully to you about your production problems. All "Valley" men on the road are either practical men or technically trained engineers.

Address your inquiry to the Valley Iron Works Co., Appleton, Wisconsin.

VALLEY

Equipment for Paper and Pulp Mills

New York Office: 350 Madison Ave.
Western Mfg. & Sales Div.: Smith & Valley Iron Works Co., Portland, Ore.
Canadian Representatives: Pulp & Paper Mill Accessories, Ltd., Montreal, Canada

Chicago Paper Market Exhibits Quiet Trend

General Conditions Expected to Remain Unchanged Until After Labor Day—Fine Paper Section Continues In Sound Position, Despite Restricted Trading—Wrapping Paper Market Spotty—Demand for News Print Falls Off, Affecting Production

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., July 14, 1930.—The last half of 1930 is beginning with the usual summer quietness in Chicago paper markets. Most of the lines are now saying "general conditions will probably remain practically the same until after Labor Day." Prices remain the same in news print with a gradual slowing up noted in demand and affecting production. The wrapping paper market is spotty with some representatives rather anxious over the outlook and others reporting improvement. There should be no change from the low prices and dull character of the market until early Fall.

Book and cover papers have held up very well, say reports. Some slowing down is expected in July but the general business has been even better than anticipated. The market is steady. Fine papers are also feeling the seasonal decline but, having fared better during the past few months than many other lines, merchants here feel that Fall should bring satisfactory conditions. Board is slow and, with the prices still not satisfactory, is expected to mark time for the next few vacation weeks. Tissues are slow and, though prices are steady now, there is some belief that lessened demand may bring some decrease. In the waste paper market the higher grades portray the only activity with the lower grades dormant.

Paperboard Industries Association to Meet

The next meeting of the Paperboard Industries Association and of the Trade Practice Division will be held at the Commodore Hotel, New York City, on July 22, 23 and 24 according to word received from the main offices of the Association at 608 South Dearborn street, Chicago. Members of the Paperboard Industries Association are eligible to attend the meetings of the group or groups in which they are enrolled and also the general meeting, a part of which consists of the Trade Practice Session. Members of the Trade Practice Administration are eligible to attend the Trade Practice Session which is held as a part of the general meeting on Thursday morning, July 24.

The Paperboard group will meet on Wednesday July 23 from 9:30 a. m. until noon with a luncheon for all members scheduled for noon. In the afternoon of the same day the Folding Box and Container groups will meet, the former between 1 and 2:30 p.m. and the latter from 2:30 to 4:30 p.m. The general meeting, including the Trade Practice Session will be held on Thursday morning, July 24, beginning promptly at 9:00 a.m. All meetings will be held in the East Ballroom of the Commodore. All meetings will be held as per New York Daylight Savings Time.

Paper Men Arrange Golf Outings

Plans are all completed for the annual golf outing of the Chicago Paper Association to be held at the Medinah Country Club on July 24. Members and guests are expected to have a thoroughly enjoyable time exploring the fairways of the beautiful Chicago club. Golf will probably start at 10 a.mm. but the main event is slated for 2 p.m. Luncheon will be served at 12:30 and dinner at about 6:30 p.m. We understand from Bill Shapland, of the Fred Rentz Paper Company, that the association is looking forward to a big time at one of the most beautiful clubs in America.

Another golf event which is creating a lot of interest is the next regular monthly tournament of the Chicago Division of the Salesmen's Association of the Paper Industry. This outing takes place on July 18 at the Park Ridge Country Club, one of the finest private courses in the Chicago District. According to Frank Prentiss, of Hollingsworth & Whitney, golf chairman, a record breaking crowd is expected to be out.

News of the Trade

"Seasonally perfect" is just about the way one would have to describe this issue of "Rags in Paper," published by the Rag Content Paper Manufacturers Association. The cover bears an attractive illustration of a sail boat skimming along. The inside front page carries another beautiful outdoors scene and the copy deals with "Vacations." It is aptly worded to start the reader off on a happy vacation and yet it has a timely suggestion or two about proper letter heads for business use.

The Empire Paper Company, 725 South Wells street, Chicago, mailed out this week samples of "100 per cent" rag bond with envelope to match. The mailing included only the sample bond and envelope to match with the descriptive matter pertaining to the size, weight, color and finish of the particular sample. The bond is carried in stock in all standard sizes and weights with envelopes to match. Prices are given on the sample.

As of July 1 the West Virginia Pulp and Paper Company this week mailed out its price lists on Stock sizes and weights in standard mill grades—both for enamel papers and the general line. Prices and descriptions on enamels covered Extra No. 1 Enamel C.2 S.White; No. 1 Enamel C.2 S.White; Enamel C.2 S.White; Enamel C.2 S.India; Folding Enamel C.2 S.White; Litho C.1 S.White; Enamel Cover C.2 S.White and Enamel Cover C.2 S.White.

Bermingham & Prosser seem to be getting the jump, as far as the mailing out of calendars is concerned. They sent out this week a 1930-31 calendar listing dates from July, 1930 to June, 1931. It is the well known Bermingham & Prosser Peacock calendar featuring Peacock Folding Enamel. Illustrations for each month feature the Peacock and quotations from many well known writers. Another feature is the printing of each sheet on a different grade and weight of Peacock Enamel. The calendar combines service, attractiveness and advertising value.

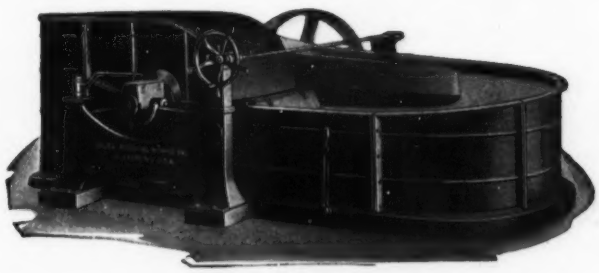
The Terry Steam Turbine Company, with main office and works at Hartford, Conn., announces the appointment of John J. Somes as manager of its Chicago office, the new location of which is at Room 556, 20 North Wacker Drive Building, Chicago.

Unity Paper Mills Case Postponed

[FROM OUR REGULAR CORRESPONDENT]

POTSDAM, N. Y., July 14, 1930.—At a hearing this week in federal court at Utica before Judge Bryant the decision as to whether or not the Unity Paper Mills should be declared bankrupt was postponed until early in October. The adjournment was ordered following the application of Bernard Wade and Arthur H. Martin, receivers, and upon the request of their attorney, Frank L. Cubley.

It was stated by the receivers that the plant has been operating at a prifit until the past month when there was a slight deficit caused by the setting aside of $900 for the bond account. In view of existing conditions the new owners are encouraged from the good showing and it is understood that operations will be continued. The creditors have not objected to the continuance of the business by the receivers and plans are now under way for a general reorganization. An effort is now being made to raise additional funds for financing the business and it is said that expansion will follow.



OUTSTANDING FEATURES

All manufacturers claim some outstanding features for their products.

Dilts Beating Engines have many features which are obviously outstanding—

Bandless Beater Rolls with flybars keyed into each of four slotted heads of cast steel. No loose fits, each key being driven home and each fit independent of all others. No rings or bands to get loose, or possibly break and raise havoc in general. Easy to refill, strong, simple and practically indestructible.

Lighter Stand adapted to meet requirements of the modern Beating Engine. Compact, rugged and designed for precision adjustment.

Adjusting Worm and Gear running in a dust-proof oil case. The Gear is supported on Ball Bearings and the Roll adjustment is thus made easy.

Spring Cushion Lighter Bar fitted with compression springs — the bearing box supported in a steel saddle held in steel levers fulcromed at a point that permits the shock to be relieved by the action of the springs. It cushions the blow when a Beater Roll jumps over a lap of pulp or a bundle of rags. It is a "shock absorber" reaching operations all around.

Quick Dumping Valve made with Bronze Ring and Cover operated by a lever outside the tub—Ring and Cover ground in together—the valve seating itself—no packing—no leaking.

These features are obviously distinctive, and in addition there are many details of design which are not so obvious or easily described—not so readily observed, but which play a big part in the economical, efficient performance and long life of Dilts Beating Engines.

More Beaters Mean
More and Better Paper.

—Dilts—

MACHINE WORKS Inc. FULTON, N.Y.

"Your Paper Is Made In Your Beaters"

Fine Paper Output Well Maintained In Ontario

Majority of Mills Are Operating Close to Capacity and Satisfactory Tonnages of Book, Bond, Writing and Ledger Papers Are Being Disposed Of—Demand For General Wrapping and Kraft Papers Has Fallen Off Materially Of Late

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., July 14, 1930.—Selling of paper by paper merchants in Toronto and district continues in light volume due to the presence of the holiday season largely and quiet business conditions generally. Some wholesalers, it is pointed out, when complaining about lack of business, have been comparing some of the recent quiet months with banner months of a year or two years ago and have been disappointed. But when due allowance has been made for the business depression that has prevailed during the past eight or nine months it has been found that sales have not been too bad and that trade has kept up remarkably well as compared with some other commodities. It is generally admitted that the paper trade is coming through the present trying period far better than most other commercial lines, although the consumption of paper has naturally been affected by quiet conditions in the printing, textile and other fields where paper and boxboard are used. As it is, most of the dealers are doing quite a fair business of the small order variety, particularly in the line of fine papers, and the average for June was well maintained for a holiday month.

Mill activity keeps up quite well in the fine paper field although coarse paper manufacturing operations and sales are not as good as they should be. Demand for both general wrapping and kraft papers has fallen off materially and it will take a big revival in trade in the Fall to overtake lack of sales since the quiet period set in several months ago. On the other hand most of the fine paper mills are operating close to capacity and there appears to be no difficulty in disposing of satisfactory tonnages of book, bond, writing and ledger papers. Book paper mills have orders on their books for well on into the summer months and a fair amount of current business is coming in for the catalog and publishing trades. Coating mills are operating lightly, business in that line being somewhat spotty, although showing gradual improvement as compared with some weeks ago. There is quite a good call for Canadian-made blotting, manilas and cover stock and despite competition from outside sources the sales of light weight papers by the domestic mills are being well maintained, although distributors of tissue and toilet lines are complaining somewhat of the lightness of volume. Grease proof, glassine and waxing papers are moving slowly and the same may be said of manufactured stationery lines, including envelopes. The latter trade is suffering somewhat owing to quiet business conditions generally throughout the province but a good turnover is looked for when the Fall opens and the paper market improves all round. Box board factories are still running light and it will likely be some time yet before that branch of the paper industry gets back to normal. Some of the paper box factories say they are doing quite as good a business as they expected to do this season but the industry as a whole is operating lightly. Some new box lines are being developed and these are helping out to some extent but the call for standard lines of set-up, folding and corrugated boxes is light.

Labor Dispute in Mill Settled

Following lengthy negotiations it is announced by officials of the International Brotherhood of Papermakers that an agreement has been reached with the Great Lakes Paper Company, at Fort William, Ont., calling for an increase of 12 cents per hour over the previous scale to employees in the news print division. The trouble with the union revolved around the large machine recently built by Bagley and Sewall Company, which is said to be the largest in the world turning out news print. The matter became serious and a strike was threatened of the 2,000 workers involved in the negotiations.

To Build Corrugating Factory

Confirmation of their intention to build a new corrugated paper box factory in the immediate future was forthcoming this week from the Canadian Wirebound Boxes, Ltd., 1000 Gerrard street East, Toronto. It is likely that the site will be on the property now owned by the company adjacent to the plant. As well as owning the plant on Gerrard street, the concern also owns and operates another large factory on Notre Dame street in Montreal. As the Toronto plant has been working for some time to capacity, the company recently secured the property and factory formerly occupied by the Thompson-Norris Company. Through this acquisition, operations of the Toronto plants have been consolidated and the output increased. A new plant is under construction in England and the company has indicated its intention to realize on its extensive rights and patents by expansion into Western Canada, although this will not be in the immediate future. The Orient, which uses more boxes than all the rest of the world, is also a prospective market.

J. H. Black Is Abitibi Co.'s Power Manager

Alexander Smith, president of the Abitibi Power and Paper Company, announced this week that J. H. Black had resigned his position as vice-president and general manager of the Spruce Falls Power and Paper Company, and has joined the Abitibi Power and Paper organization. He has been appointed assistant to the president with special jurisdiction over water power development. Mr. Black is widely known in paper circles in Canada and is a director of many important Canadian corporations. He is an ex-railway operator and was for twelve years general manager of the Northern Canada Power Corporation. For eight years he was managing director of the Excelsior Life Insurance Company. He was born near Smith Falls, Ont., in 1875, where he was educated.

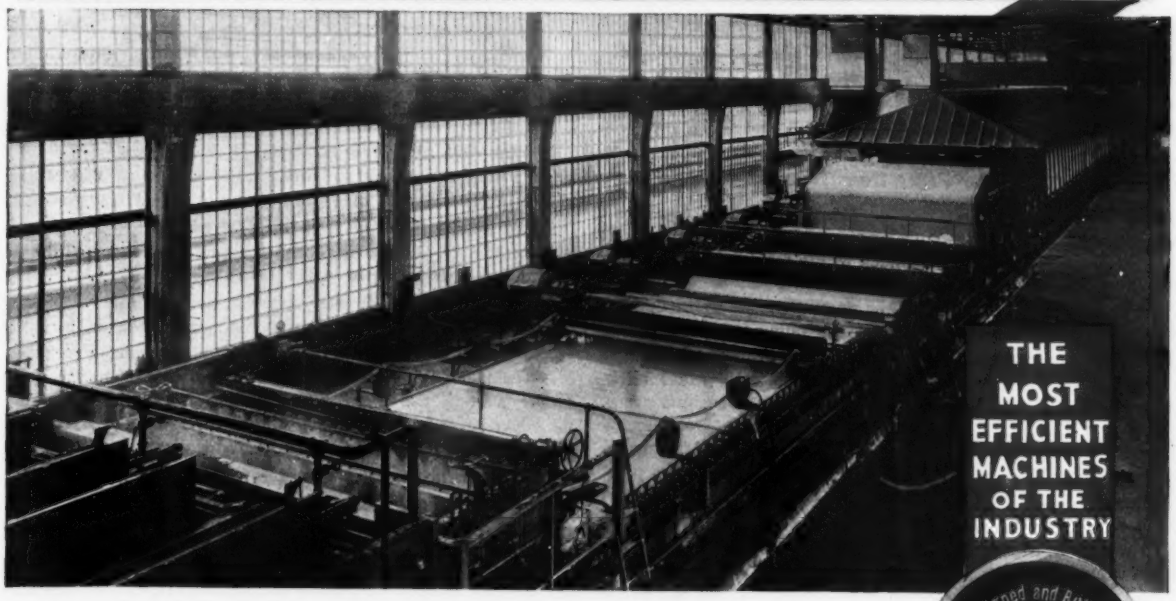
Dryden Products Demand Keeps Up

The Dryden Paper Company, Dryden, Ont., is making very good progress in spite of the dull condition of the kraft paper trade. The export market for kraft has been virtually eliminated by overexpansion and price cutting in the United States, but the company's domestic business is holding up fairly well. Dryden does most of its business in Western Canada and only a negligible proportion of its output finds its way east. While sales have been affected by general business conditions in the west, it is stated that collections are good, if not better, than they have ever been. Thus the outlook for the current year which ends September 30, is encouraging. Net earnings in the previous fiscal year amounted to $351,823, or the equivalent of $1 a share on the common stock and though profits are hardly likely to equal those of last year it is not thought that the financial statement will reveal a drastic drop. Dryden's contract with the Bates Valve Bag Company supplies an assured outlet for a substantial portion of the product. The Bates company have installed machinery in the Dryden plant for the manufacture of cement bags under the Bates patents and though this division was slacker during the winter months it is reported that it is now operating on a satisfactory basis.

Abitibi's Electrical Development

Announcement of definite plans in connection with construction of the proposed new power transmission line from Abitibi Canyon to the Sudbury districts, is being withheld pending the completion

PACESETTERS



GRAYS HARBOR...

World's Largest Bond Machine

When Hammermill's engineers planned to provide the new Grays Harbor mill with the widest and fastest bond machine ever constructed, they chose Bagley & Sewall to do the building. For Bagley & Sewall, in over a century of intimate contact with the paper making industry, has acquired the organization and the equipment to do this sort of job unusually well.

Today, this giant, 202" across the wire, is turning out a stupendous tonnage of fine bond, setting a production mark inconceivable a few years ago. Despite its immense size and capacity, it is constructed and assembled with a degree of refinement in mechanical detail and operating precision never approached in older and smaller types.

Everywhere, throughout the industry, the pace setters, makers of quality papers of every type, turn to Bagley & Sewall for standard and special equipment, from head box through to rewinder. And, always, Bagley & Sewall equipment justifies their confidence.

The Bagley & Sewall Co.

Watertown, N. Y.

42

of arrangements for building the dam and development plant of the Hudson's Bay Power Company, subsidiary of the Abitibi Power and Paper Company, it has been learned. Although this matter is awaiting a definite decision it is understood that the 100,000 h.p., which the Ontario Government has contracted for Sudbury district, will be turned over to the Hydro-Electric Power Commission through a switching station at Hunta. Meanwhile fears of a power shortage at Sudbury this year, arising out of the scarcity of rainfall this spring, have been considerably allayed by recent rains. The water level in Wahnapitae Lake, which is Sudbury's chief power reserve, has risen rapidly wthin the past week or two and Hydro officials are of the opinion that there will be no occasion for anxiety.

To Make Paper from Hemlock

Experiments are being carried on at the University of British Columbia with a view to establishing a process that will make it possible to utilize 99 per cent hemlock in the manufacture of news print. If these experiments are successful the production of pulp and paper in British Columbia will be revolutionized, in the opinion of practical paper men. At present the pulpwood used in the manufacture of news print is in the following proportions: 40 per cent spruce, 40 per cent hemlock, 20 per cent balsam and larch. The growing scarcity of spruce, except in closely specified areas, will act as a barrier to future large scale news print expansion, in the opinion of paper manufacturers, unless some means is found of using a smaller proportion of this species in news print manufacture. The established pulp and paper concerns such as Powell River Company and Pacific Mills, Canadian subsidiary of the Crown-Zellerbach Corporation, are well supplied with spruce, but the stands of spruce readily accessible to mill sites, and which are now under control, are relatively not extensive. There are, on the other hand, vast stretches of hemlock timber which under present conditions finds only a fair market. Hemlock would be an asset of prime importance in future development of the industry if a practical means of utilizing it could be found. Meanwhile there is talk of at least three large pulp and paper corporations entering British Columbia in the near future. These include International, which is understood to have an option on Vancouver Island pulpwood limits; Backus-Brooks, who operate extensively in the middle west, and the Hearst publishing interests.

Notes and Jottings of the Trade

Frederick H. Matusch, a director of F. Bender & Co., Ltd., London, Eng., manufacturers of lace papers, Christmas Doilies and Christmas Crackers, sailed on the *Duchess of Atholl* on July 4 for Canada where he will confer with E. H. Wilkinson, of E. H. Wilkinson & Co., the English firm's representative in the Dominion. Mr. Wilkinson has been handling the Bender lines in Canada for some years and has built up an extensive connection with the retail trade handling these lines in this country.

The office staff and other employees of the Charles V. Syrett Paper Company recently held their annual picnic at Victoria Park, Niagara Falls, when a full day's program of sports and other recreative enjoyment was indulged in. Valuable prizes were offered for the sports events and these were presented to the winners by Mr. Syrett and Vice-President Meredew.

G. R. Warwick, president of Warwick Bros. & Rutter, paper dealers and manufacturing stationers, King street West, Toronto, has returned after a short holiday stay on the Maine coast.

J. E. Sullivan, of Warwick Bros. & Rutter, Toronto, sailed a few days ago on the S.S. *Montcalm* from Montreal on a business trip to England and the Continent in the interests of his firm. Mr. Sullivan expects to be absent a couple of months.

A. E. Long & Co., paper box manufacturers, Toronto, celebrated the twenty-fifth anniversary of their organization as a limited liability company by tendering their employees an outing at Burleigh Falls, north of Peterboro, Ont. There were about 130 in the party which was transported to the Falls by buses. Water sports and other recreations were indulged in and a most enjoyable day spent by the employees and executive staff as well.

The Fielder Paper Box Company, Ltd., Toronto, held their annual outing at Port Dalhousie, across the lake from the city, a few days ago, and spent the day in sports and a variety of entertainment which brought enjoyment to the large gathering present.

James Hales, president of A. E. Long & Co., paper box manufacturers, Toronto, was waited upon by the employees of the company a few days ago and presented with a gold headed walking stick as a mark of their esteem. The presentation took place upon the eve of Mr. Hales' departure on a trip to the Pacific Coast.

George W. Sissons 3rd, of the Racquette River Paper Company, Potsdam, N. Y., was a caller on Paper Sales, Ltd., a few days ago.

J. G. Sutherland, of the Mead Sales Company, Dayton, Ohio, was a business visitor in Toronto early in July.

K. S. Maclaughlan, general manager of the Fraser Companies, Edmunston, N. B., was in Toronto a few days ago, visiting some of his old friends in the paper trade.

It was announced at the office in Toronto this week of the Spruce Falls Power and Paper Company, Ltd., with mills at Kapuskasing, Ont., that E. S. Noble, who for some time has been plant manager at Kapuskasing, had been promoted to the position of president of the company, succeeding J. H. Black, the former president, who has joined the Abitibi forces. George Barber, of Toronto, has been elected treasurer and a director.

George Davidson, sales manager for the Howard Smith Paper Mills, spent several days in Toronto last week.

John Piper, sales manager of Provincial Paper, Ltd., is holidaying at his old home in Cobourg, Ont.

An interesting feature in connection with the new mill of the Insulite Company of Finland is that the grinders were made by the Carthage Machine Company, of Belleville, Ont. The Insulite Company is a subsidiary of the Backus company which has several large paper mills in Canada, at Fort Frances, Kenora and Fort William. The grinders are being shipped to Karhula, Finland, the company having built considerable other machinery for mills in Finland.

A handsome portfolio of its coated papers has just been issued by Provincial Paper, Ltd., head office Toronto, in which are shown all the grades, sizes and colors of the company's lines. It is done up in Sachem cover, Autumn brown, single thick and bears the legend, "There is a Provincial Coated Paper for Every Printing Use."

Good progress is being made on the new plant of the F. N. Burt Company, manufacturers of blank forms, etc., at Mount Dennis, adjacent to Toronto. The walls and roof have been completed and the interior work is now being carried on. In a few weeks the company will remove from their present premises on Wellington street West, Toronto, to the new plant.

E. W. Tobin, who was recently made a Dominion senator, was born in Brompton Falls, Que., and is a former president of the Brompton Pulp and Paper Company, Ltd., while he was also associated with other commercial interests. He was elected to the House of Commons as a Liberal in 1900 and has been successful at every subsequent election.

Huge Pulp Timber Project Proposed In Colorado

DENVER, Col., July 11, 1930.—The United States forest service has tentatively accepted the offer of the Trans-Mississippi Development company, a subsidiary of the International Paper Company of New York, to buy 2,000,000 cords of pulp timber in South-western Colorado.

The Trans-Mississippi company plans to establish news print paper mills either at Salida or Alamosa which would produce sufficient newsprint paper to supply the larger share of the market in the Rocky Mountain district the next 20 years.

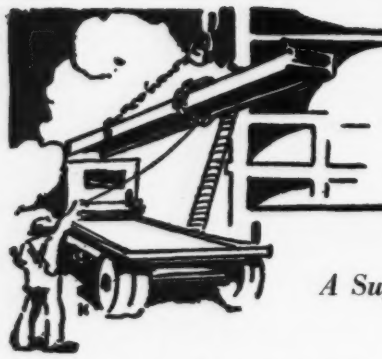
There's not much profit in a pound of paper, nor in a ton, for that matter. It's the hundred ton unit that successful paper-makers figure on now-a-days,

so we make 'em wider and faster and more profitable

Pusey and Jones

THE SIGN OF TRADE MARK SUPERIOR QUALITY

THE PUSEY AND JONES CORPORATION, WILMINGTON, DELAWARE, U. S. A., Builders of PAPER MAKING MACHINERY; for NEWS : BOOK : KRAFT : BOARD : : Working For, and in Technical Co-operation With, the Forward-Thinking Minds of the Industry : Since 1848 : The MARK, shown here, will be found on Every Casting, and on every Other Part of major Importance, in every Machine produced by This Company : : It is the Mark of Our Own Technical Standards : : A mark of Superior Quality.



CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Lockport, N. Y.—The Corson Manufacturing Company, 138-40 Main street, manufacturer of paper boxes and containers, will begin the immediate erection of its proposed new plant unit at Park avenue and Michigan street, consisting of a one-story structure, 140 x 150 feet, sawtooth roof type, for which general building contract has been let to William B. Eaton, Olson Building, Lockport. It is proposed to have the factory ready for the installation of machinery early in October, with entire cost of project estimated at about $75,000. It is understood that present plant will be removed to the new location and capacity increased. George A. Castle is president.

Cloquet, Minn.—The Northwest Paper Company, Cloquet, is arranging miscellaneous contracts for construction work in connection with its new mill unit, to be one-story, 125 x 725 feet, designed for increase in machine, beater room and finishing divisions, including as well a portion of structure for raw pulp storage and distribution. An award for structural steel has been let the Minneapolis Steel & Machinery Company, Minneapolis, Minn.; for reinforcing steel to Olney J. Dean Company, Corn Exchange Building, Minneapolis; for cement to the Universal Atlas Cement Company, Minneapolis; for steel sash, an award to the Concrete Steel Company, St. Paul, and for glass to the Paine & Nixon Company, Duluth, Minn. It is understood that the lumber required for the project will be furnished by the Lumber Division of the Northwest Company. Work on the new mill will proceed actively and the unit is expected to be ready for occupancy in the fall. The Jacobson Engineering Company, Plymouth Building, Minneapolis, Minn., is engineer. H. S. Hornby is president.

Milwaukee, Wis.—The A. George Schulz Company, 417 Clybourn street, manufacturer of paper boxes and containers, will defer temporarily the construction of its proposed new plant addition, for which plans have been under way at the office of F. F. Drolshagen, 447 Virginia street, Milwaukee, architect. The structure has been reported to cost over $40,000 with equipment.

Brooklyn, N. Y.—The Brooklyn Carton Company, Inc., recently organized by Clifford J. Feistel, 662 Westchester street, Long Beach, L. I., and associates, is said to be plannng the early operation of a local factory for the production of paper boxes and containers.

Connellsville, Pa.—The Fort Wayne Corrugated Paper Company, Fort Wayne, Ind., is arranging for the early operation of its new local plant at South Connellsville, which has been in course of erection for a number of weeks past. As previously reported in these columns, the unit adjoins the plant of the Capstan Glass Company, and has been constructed by that organization, and leased to the Fort Wayne company. It is understood that the Capstan organization will be the principal customer for the output of the plant. It is proposed to give employment to about 50 operatives for initial manufacture.

Ampthill, Va.—The duPont Engineering Company, duPont Building, Wilmington, Del., has been asking bids on a number of contracts for proposed new mill of the duPont Cellophane Company, River Road, Buffalo, N. Y., at Ampthill, near Richmond, an affiliated organization. It is understood that foundations will be laid and superstructure placed in progress before the close of the month. The plant will be used for the production of moisture-proof transparent wrapping materials and is reported to cost close to $4,000,000, with equipment. The project will include a power house, machine shop and other miscellaneous mechanical units.

Middletown, Ohio.—The Raymond Paper Bag Company, Middletown, has awarded a general contract to F. K. Vaughn, Hamilton, Ohio, engineer and contractor, for the construction of its proposed new plant for the manufacture of paper bags and containers, reported to cost over $200,000, with machinery. It is understood that plans are not as yet entirely completed, and that this work will be carried out under the direction of the contracting company. The new mill, as now projected, will be of multi-story type, brick and steel. It will provide for a large capacity.

Port Huron, Mich.—The Port Huron Sulphite and Paper Company, Port Huron, has negotiations under way with the Grand Trunk Railroad Company for the purchase of a local tract of about 10 acres of land, now held by the railroad under an old Government permit. The land fronts on the Black and St. Clair Rivers, in the vicinity of the present mill of the Port Huron company, and will be used for expansion.

New York, N. Y.—The Sealed Containers Corporation, 230 Park avenue, is increasing its output of paper containers to replace glass milk bottles and reports that the new type of container is meeting with increased demand by a number of leading milk distributors. With an output and distribution of about 4,000,000 of such containers in 1929, it is estimated that about 40,000,000 such units will be manufactured and distributed during the present year.

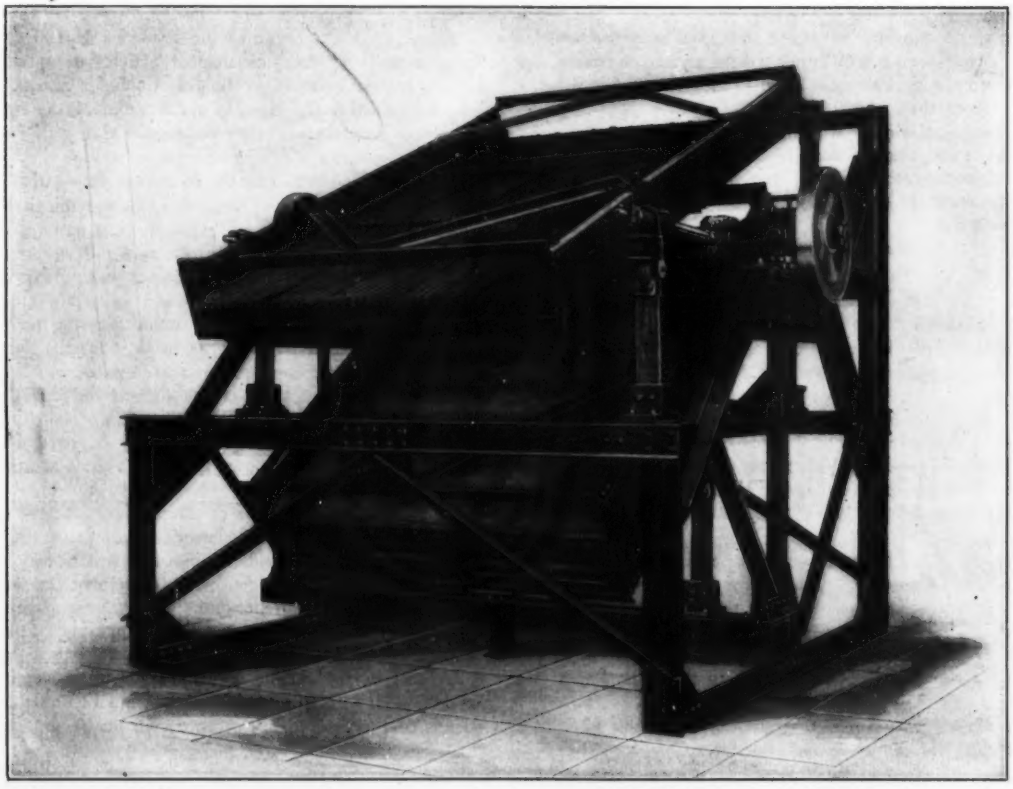
New York, N. Y.—Vortex Manufacturing Company, 421 North Western avenue, Chicago, Ill., manufacturer of paper cups, etc., has leased a floor in the building at 141 Hudson Street, New York, and will occupy for Eastern distributing service.

Oakland, Cal.—The Los Angeles Paper Box Company, 3324 South Main street, Los Angeles, is said to have final plans arranged for its proposed new plant unit at 2615 Pitt street, Oakland, and will proceed with structure at an early date. It will be one-story, 163 x 200 feet, estimated to cost about $80,000, with equipment. The output will be devoted largely to the manufacture of folding paper boxes and cartons. William Knowles, 1214 Webster street, Oakland, is architect.

Chicago, Ill.—J. J. Bauer & Company, 1038 North Ashland avenue, manufacturer of paper boxes and containers, has completed plans for extensions and betterments in its three-story factory, to provide for enlarged output and increased efficiency in output. It is expected to proceed with the work at an early date. Louis Lurvey, 8 Ogden avenue, is architect, in charge.

Denver, Colo.—The Trans-Mississippi Development Company, an interest of the International Paper Company, 220 East 42nd street, New York, is concluding arrangements with the United States Forestry Service for the purchase of about 2,000,000

RYTHER AND PRINGLE COMPANY
CARTHAGE N.Y.



RYTHER HIGH SPEED SCREEN

Send for Bulletin No. 528

CANADIAN INGERSOLL-RAND COMPANY, LIMITED
10 PHILLIPS SQUARE, MONTREAL, P. Q.

cords of pulp timber in the Southwestern part of Colorado, now standing on a tract of land heretofore held by the Government. The purchase of the property is said to include the construction and operation of a new mill for the manufacture of news print, to be located either at Salida or Alamosa, Colo., in the vicinity of the timber tract, making a comparatively short haul for the raw material to the mill. Estimated cost of project has not been announced.

Quebec, Que.—The Anglo-Canadian Pulp and Paper Mills, Ltd., Quebec, which recently formed an affiliation with the Canada Power and Paper Company, is running on a capacity schedule at its local news print mill, and will hold to this basis for an indefinite period. The company is said to have secured a large contract for news print which will insure maximum production for many months. The Canada Power and Paper Company has previously acquired a controlling interest in the Wayagamuck Pulp and Paper Company, Three Rivers, Que., as well as the Port Alfred Pulp and Paper Corporation, with mill at tidewater on the Saguenay River, at Port Alfred, Quebec. This entire amalgamation includes a group of six mills in the Province of Quebec, the majority of which are now on a full time, full production rating under large gross output.

Buckingham, Que.—James McLaren Company, Ltd., is pushing completion of its new local news print mill, and expects to have the unit ready for service within sixty days. The plant will have a rated capacity of about 250 tons of news print a day, and it is understood will be placed on an active production schedule as soon as completed. It will represent an investment, it is said, or more than $2,000,000.

Detroit, Mich.—National Automotive Fibres, Inc., has production under way at its new mill at Detroit, recently referred to in these columns, and will develop maximum output at the plant by the end of August. J. R. Millar is treasurer and general manager.

New Companies, Etc.

Brooklyn, N. Y.—The Armore Paper Stock Corporation has been incorporated with a capital of 200 shares of stock, no par value, to manufacture and deal in paper products of various kinds. The principal incorporator is Milton Kornblum. The company is represented by Anson Van Ness, 165 Broadway, New York, attorney.

Rockford, Ill.—The R. W. Sheets Paper Box Corporation has arranged for a decrease in capital from $100,000 to $25,000.

Detroit, Mich.—The Bates Valve Bag Corporation, New York, operating in Michigan, has filed notice with the secretary of state of increase in capital from 10,000 to 200,000 shares of stock, for general expansion.

New York, N. Y.—The Reliance Paper and Twine Mills, Inc., 1 Bond street, has filed notice of a change in capital from $20,000 to $250,000 in preferred stock, and 100 shares of common stock, no par value.

Brooklyn, N. Y.—The Park-Gans Paper Box Corporation has arranged for a change of company name to the Park Paper Box Company.

Danville, Ill.—F. E. Butcher, Danville, has been appointed ancillary receiver for the Cornstalks Products Company, Inc., with local mill for production of paper stocks from cornstalks, in bond of $10,000. The company is capitalized at over $4,000,000, and is said to have expended a large sum in recent years for development work under its special process.

To Be Manager of Columbia Bag Factory

HUDSON FALLS, N. Y., July 1, 1930.—Announcement is made of the appointment of Jere J. Moynihan, of this place, to the position as resident manager of the Columbia factory of the Union Bag and Paper Corporation at Flushing, L. I. For the past few years he has served as assistant business manager at the mills here and his promotion was a deserving one in view of his fine record. He will assume his new duties on July 15.

News of the Boston Paper Trade

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., July 14, 1930.—Col. Edgar Smalley, director of Edwin Butterworth, Ltd., Manchester, Eng., is in this country for two weeks, and was at the office of E. Butterworth & Co., Inc., two days.

Col. J. D. Jordan, of the Jordan Card and Paper Company, is at Raymond, Me., for a two weeks' vacation, with fishing as the chief diversion. He is accompanied by his son, W. M. Jordan, of the Pratt Paper Company.

Philip R. Allen, president of Bird & Son, East Walpole, Mass., is a member of "Two Hundred Fifty Associates of the Harvard Business School," an organization announced July 10 by Harvard University. The purpose of this organization is to promote business research and the collection of materials for the teaching of business, and the members will give $250,000 a year to be used for that purpose. Among this group are Andrew J. Mellon, J. Pierpont Morgan and Vincent Astor. Mr. Allen is chairman of a group to raise $40,000 for "Wonderland," a fresh air camp at Lake Massapoag, Sharon, Mass., for the Salvation Army, which was opened July 12.

F. Bendel Tracy, head of the Fort Hill Paper Company, and secretary of the Boston Paper Trade Association, returned last week from a trip to the Pacific Coast, accompanied by Mrs. Tracy.

"How," the house organ of the Tilestone & Hollingsworth Company, includes in the July number articles of special interest to printers and an analysis of the July Calendar Sheet.

L. Richmond & Co., Inc., is a Brockton, Mass., company incorporated to deal, among other commodities, in wall paper.

Boston Paper Market Irregular

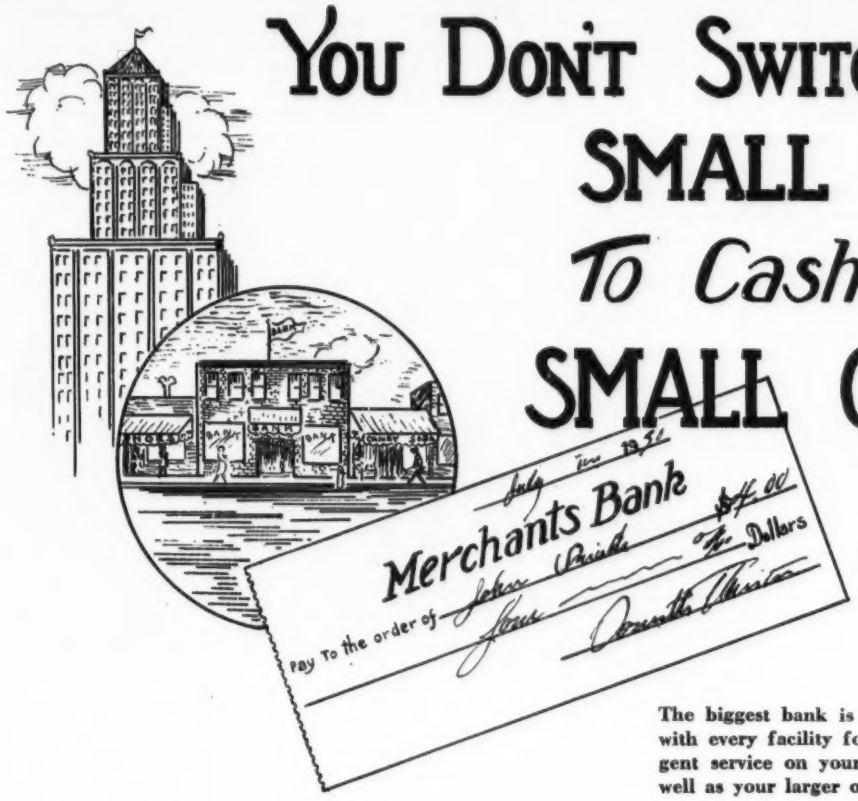
BOSTON, Mass., July 14, 1930.—Considering the time of year, demand for paper has averaged well. In most cases it is hardly better than fair, and some, both in the fine and wrapping paper divisions, say that business has been poor or dull. Some of the dealers in kraft note a fairly good demand, and in certain quarters a slight improvement. A number of the manufacturing plants were shut down during the first two weeks in July for the annual vacation. Owing to the lower operation of textile mills, which in some cases have been shut down, there is less demand for textile papers. Conditions in box board are "no worse," and in certain specialties there is a slight upward trend. Movement in standard lines for candy box and shoe carton purposes is slow. Values are unchanged.

The paper stock situation has shown no improvement as a whole. What little business is secured is transacted on a hand-to-mouth basis. It is the consensus of opinion that towards September 1 a betterment or indications of it will develop, but that the growth of demand will be slow. Members of the trade state that prices will go no lower because they are now at the lowest point in a mid-summer dullness. In certain lines, such as mixed papers, especially news, a dealer says there should be considerable improvement by the middle of August. Gunny bagging is slightly weaker, with foreign gunny worth around 1.65 on the dock. Mixed strings of the best quality bring a cent per pound.

Bids for Government Paper

WASHINGTON, D. C., July 16, 1930.—The Government Printing Office has received the following bids for 10,000 pounds of manila calendered tagg board in 23¼-inch rolls; Barton, Duer & Koch Paper Company, at 7.2 cents per pound; Whitaker Paper Company, 7.13 cents, and Perkins-Goodwin Company, 7 cents.

The Printing Office also received the following bids for 4,925 pounds of 18½x35½-inch white recording instrument chart paper: American Writing Paper Company, at 32.5 cents per pound; R. P. Andrews Paper Company, 29.5 cents; Barton, Duer & Koch Paper Company, 30 cents; Perkins-Goodwin Company, 27.25 cents; Hawthorne Paper Company, 28 cents; Old Dominion Paper Company, 24.4 cents.



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Likewise, the Ross organization, largest in the field for supplying mill apparatus for heating, ventilating and drying, is best prepared in every way to fulfill your minor as well as your major requirements for such equipment. Ross service assures savings of time, bother and expense, on orders of any size, that only such an organization of specialists could possibly provide.

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Obituary

Howard F. Marston

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, July 12, 1930.—Howard F. Marston, general manager of the International Envelope Company, died yesterday at the Miami Valley Hospital, following a protracted illness. Mr. Marston was widely-known here and in other sections of the country. He was a vigorous worker in whatever task he undertook. After taking an art course in Boston, he went to New York and was associated with the American Lithographing Company. Then he became identified with the Hartford, Conn., firm which was engaged in printing stamped envelopes.

When the Mercantile Corporation of this city was awarded the contract by the Government he was sent to this city as general manager of the concern. This took place in 1908. In 1915 the Mercantile Corporation became known as the Middle West Supply Company, and since January 1, 1929, it has borne the name of the International Envelope Corporation. Mr. Marston had served as general manager of the three concerns.

For many years he was a member of the Chamber of Commerce and served on various active committees successfully at different periods. He possessed substantial business interests outside of the International connections, having been a director of the Winter National Bank; president of the board of directors of the new Van Cleve Hotel; a director of the Specialties Paper Company; a director of the First Street Garage Company; chairman of the board of the Blommel Sign Company; president and treasurer of the East Dayton Realty Company and an associate in the Geyer-Dayton Advertising Company.

Mr. Marston possessed both the executive and the artistic bent and in this respect he was considered by his numerous friends to be an exceptional man. He was an enthusiastic collector of antiques and his home at First and Ludlow streets was filled with them. He was affiliated with many fraternities and clubs, being a member of the Scottish Rite Masons and the Shrine; the Queen City Club of Cincinnati; the Buz Fuz Club, Dayton; the Engineers Club of this city, and the Salmi Gundi and Sphinx Clubs of New York.

Surviving him are his wife, Margaret B. Marston; his father, Freeman Marston, of Falmouth, Me.; his brother, Mahlon Marston, New York, and his sister, Mrs. W. B. Haskell, Seattle, Wash. He was born in Manchester, N. H., October 9, 1877.

Henry Hill Collins

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., July 14, 1930.—Henry Hill Collins, former president of the A. M. Collins Manufacturing Company, paper manufacturers and converters, with plant at Third and Columbia avenue and offices at 1518 Walnut street, passed away at his home, Arnecliffe, Bryn Mawr, near Philadelphia, last Tuesday. He was 86 years of age. He was co-founder with his father, Alfred M. Collins, of the A. M. Collins Manufacturing Company, which produced specialty papers used by the printing, box making and photograph industry and for picture framing purposes and allied lines. The business was founded in 1857 in a joint partnership of father and son. He retired from the business several years ago because of an illness which later made him an invalid.

He was a director of the Glen Mills School, and president of it in 1914 and 1915, was a manager of the Pennsylvania Hospital from 1899 to 1917 and was largely instrumental in organizing the social service department of that institution which dates back to its founder, Benjamin Franklin. His many activities in social welfare work, as a pioneer in this field of philanthropy in the Quaker City, placed him on the directorate of many institutions and for more than twenty years he was a member of the board of managers of the Society for Organizing Charity, which is now the Family Society. He was a founder of the Philadelphia Barge Club. Mr. Collins was a director of the Provident Trust Company of Philadelphia until 1916, when he resigned.

Mr. Collins was active in several other financial institutions, including the Philadelphia Savings Fund Society of Holy Trinity Church, of which he was vestryman for many years. He was a member of the Union League, Manufacturers Club, the Art Club, the National Geographical Society, Franklin Institute, Academy of Natural Sciences, Zoological Society, and the Merion Cricket Club, of which he was a founder. He is survived by two sons, Henry H. Collins, Jr., Bryn Mawr, and Alfred M. Collins, distinguished explorer and big game hunter, both of the A. M. Collins Manufacturing Company; and a daughter, Mrs. Henry Hillman Perry, of Bryn Mawr.

Charles P. Mead

ROCHESTER, N. Y., July 14., 1930.—Charles P. Mead, 71, of 95 West High Terrace, former alderman and well-known paper dealer, died July 5th in General Hospital. Mr. Mead, who was born at Alden, N. Y., came to Rochester 46 years ago to enter the wholesale grocery business. Fifteen years ago he began a wholesale paper business under the firm name, Charles P. Mead & Sons, Inc., at 70 Oakman street, where it is still located. He remained at his duties until a week ago when he was taken ill.

Mr. Mead was a charter member of Rochester Council, Knights of Columbus, and a member of the Holy Name Society of St. Monica's Church. He was alderman from the Seventeenth Ward two terms, having been elected as a Democrat 30 years ago.

He leaves his wife, Mrs. Eva Mead, five sons, Robert, of San Francisco; Charles, Jr., Raymond J., and James Mead of Rochester, and Leo R. Mead of Los Angeles; four daughters, Frances K. and Marie E. Mead, of San Francisco; Isabelle M. Mead and Mrs. Charles F. McKenna, of Rochester; two grandchildren; a sister, Mrs. Mathias Wagner, of Fargo, N. Y., and a brother, D. J. Mead, of Buffalo.

Ohio Men Get Paper Patents

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, July 7, 1930.—Charles B. Briede and Herman L. Kutter recently were granted a patent for a paper making machine. Both are widely-known and are being congratulated as they waited nearly four years, following the filing of their application in 1926.

In official language the patent is described as follows:—"In a paper making machine a couch roll adapted to be moved frontwise out of normal operating position, said roll having a front carriage and track means therefor, a rear carriage and overhead track means for said rear carriage."

John Decker and Arthur B. Green, both of Middletown, have been granted a patent involving a method of and apparatus for producing transparent waxed paper, having filed their application in February, 1927. A dispute arose within the patent office, it is stated, over some of their claims to new ideas and as a result a second application was necessary. This was filed March 10, 1930, and upon it the patent was granted, nine claims for new ideas eventually being allowed.

The patent is described as follows:—"The method of treating waxed paper to increase the transparency and avoid a mottled appearance thereto, said method consisting in subjecting said paper to a degree of heat but little short of causing combustion, and then cooling the wax paper."

Hawley Co. Gets New Warehouse

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, ORE., July 11, 1930.—The Hawley Pulp and Paper company has leased the northeast corner of East First and Salmon streets, Portland, where 30,000 square feet of a building are made available for warehousing purposes.

ASK THE G·T·M· TO stOP

LOSSES IN **YOUR** OPERATION

The discovery of waste is a prime function of the G.T.M. —Goodyear Technical Man. Now in the handling of materials, now in process methods, he searches out leaks and stops them. He corrects unsuspected losses. Whether your problem is the movement of goods, engine-power, air, or liquids, his knowledge is at your service. By accurate specification of Mechanical Rubber Goods to need, he has lowered costs in innumerable operations. From raw stuff to finished goods he knows industry. He stops costly waste.

Throughout the paper industry are G.T.M.-specified economies. He is an expert in the field. He has applied Goodyear Compass Endless (Cord) and Goodyear Emerald Cord Multiple V Belting to beater drives with outstanding and uniform success. He has installed Goodyear Conveyor Belting for movement of wood chips and stoker coal. He has furnished Goodyear Sanitary Hose—a *soft-nozzled* hose—for wash-up, and pounds of Goodyear Packing to conserve your power. The G.T.M. can bring new profit to you now.

• • •

For data on savings the G.T.M. can bring to your operation, just write to Goodyear, Akron, Ohio, or Los Angeles, California.

THE GREATEST NAME IN RUBBER

GOODYEAR

BELTS MOLDED GOODS HOSE PACKING

Trade Mark Department

CONDUCTED BY NATIONAL TRADE-MARK CO., WASHINGTON, D. C.

The following are trade mark applications pertinent to the paper field pending in the United States Patent Office, which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade Mark Company, 900 F street, N. W., Washington, D. C., trademark specialists. As an additional service feature to its readers, PAPER TRADE JOURNAL gladly offers to them an advance search free of charge on any mark they may contemplate adopting or registering.

FOAMLITE.—Ser. No. 281,861. Standard Products Corp., New York City. For tissue paper.

Representation of a diamond within a circle.—Ser. No. 292,582. Keyes Fibre Company, Inc., Waterville, Me. For plates and dishes made from paper pulp or fibre.

"GUARDURE."—Ser. No. 294,184. James W. Shaw, doing business as Guardure Company, Chicago, Ill. For blank checks sold to the trade as such.

A. M. & Co., and representation of a clown.—Ser. No. 295,718. Albert Markmann & Co., Langenberg, Germany. For paper streamers and confetti.

SHADOWART, and design.—Ser. No. 295,829. The Beveridge Paper Company, Indianapolis, Ind. For cover paper, papeteries, boxcover stock, tablet cover, calendars, etc.

NO-BRUZ.—Ser. No. 297,079. Illinois Pacific Glass Corporation, San Francisco, Calif. For cardboard or paper liners for fruit-boxes.

LANDO.—Ser. No. 297,094. Northwestern Supply House, Chicago. For articles customarily put up and sold by a stationery store, particularly loose-leaf binders, composition books, envelopes, etc.

KERFS.—Ser. No. 297,254. Kotex Company, Chicago. For paper handkerchiefs.

NEENAH, and representation of an owl.—Ser. No. 297,265. Neenah Paper Company, Neenah, Wis . For bond, ledger, writing, map and index paper.

PUBLICITY WRAPPING, and fanciful representation of an eagle.—Ser. No. 297,486. Geo. W. Millar & Co., Inc., New York City. For wrapping paper.

FIRM-A-FILE.—Ser. No. 297,714. Yawman and Erbe Manufacturing Company, Rochester, N Y. For transverse partition plates for filing-cabinet drawers.

CONSULAR BOND.—Ser. No. 297,847. Carew Manufacturing Company, South Hadley Falls, Mass. For writing and printing paper.

S ANI-CELLULOSE.—Ser. No. 297,924. McClure & Wheat, Rock Rapids, Iowa. For tissue rolls.

VERTEX.—Ser. No. 298,067. Badger Paper Mills, Inc., Peshtigo, Wisconsin. For writing paper and tissue paper for printing and wrapping.

TAMARACK, and representation of a tree. Ser. No. 298,249. Manville Jenckes Company, Pawtucket, R. I. For cotton cord.

LINETTE.—Ser. No. 298,260. The Tissue Company, Saugerties, New York. For paper napkins and towels.

HELLO WORLD.—Ser. No. 298,438. Fort Howard Paper Company, Green Bay, Wis., for toilet paper.

MINUTE MAN.—Ser. No. 298,439. Fort Howard Paper Co., Green Bay, Wis. For toilet paper.

CARBINFOLD.—Ser. No. 298,614. Bonnar-Vawter Fanform Co., Inc., Cleveland, Ohio. For printed blank forms to which other matter may be added.

REPRESENTATION OF A CROWN, AND DRAPERIES IN COLOR ROYAL PURPLE.—Ser. No. 298,662. The Royal Lace Paper Works, Inc., Brooklyn, N. Y. For paper products—namely, shelf paper, lace paper, fancy printed and embossed paper in rolls and sheets, tissue paper, etc.

WAAGE.—Ser. No. 298,387. J. W. Guttknecht, Stein, near Nuremberg, Germany. For lead pencils, pencil holders, coloured pencils, pastel crayons, tracing cloth, pen boxes, etc.

FUTURA, TEXT.—Ser, No. 298,974. Bradner-Smith & Company, Chicago, Ill. For paper—namely, cover paper, bond paper enameled book paper, writing paper, drawing paper, paper for box covering, uncoated book paper, etc.

LACOTE.—Ser. No. 298,975. Bradner-Smith & Co., Chicago, Ill. For paper—namely, cover paper, bond paper, enamelbook paper, writing paper, drawing paper, paper for box covering, uncoated book paper, etc.

GAIETEE.—Ser. No. 299,168. The Tuttle Press Company, Appleton, Wis. For wrapping paper and napkins.

FORT ORANGE, and representation of children playing—Ser. No. 299,479. Albany Perforated Wrapping Paper Co., Albany, N. Y. For toilet paper.

"HELLO WORLD".—Ser. No. 299,523. Southern Tablet and Manufacturing Company, Atlanta, Ga. For tablets, composition books, and filler paper.

AQUATINT.—Ser. No. 280,287. Seaman Paper Company, Chicago, For book papers, cover papers, bristols and document, and Manila papers; ledger, bond and writing papers, thin papers, envelopes, etc.

TYP-O-GRAMS.—Ser. No. 295,256. Dictatype Incorporated, Wilmington, Del. For typewriter paper and paper rolls for use on typewriting machines.

CELLATE.—Ser. No. 299,547. Brown Company, Portland, Me., and Berlin, N. H. For cellulose pulps.

CHRONICLE.—Ser. No. 299,552. Carew Mfg. Company, South Hadley Falls, Mass. For writing and printing paper.

MOTHER HUBBARD'S.—Ser. No. 299,590. Paper Specialty Company, Wausau, Wis. For waxed paper, parchment paper, paper table covers, and paper napkins.

APPELLATE.—Ser. No. 299,896. Carew Manufacturing Company, South Hadley Falls, Mass. For writing and printing paper.

TRISCO BOARD—Ser. No. 285,199. Eggerss-O'Flyng Company, Omaha, Neb. For corrugated strawboard.

CELLUSUEDE—Ser. No. 290,268. Mosinee Paper Mills Company, Mosinee, Wis. For paper used for menu covers, dance programs, box covers, novelty pieces, etc.

"PRINCESS WENONAH" DESCRETARY—Ser. No. 291,127. Jones & Kroeger Company, Winona, Minn. For combination memorandum and calendar desk pad.

EATON'S HIGHLAND VELLUM, E E E E, etc.—Ser. No. 294,873. Eaton, Crane & Pike Co., Pittsfield, Mass. For papeteries, correspondence cards, writing paper, writing tablets, correspondence and mailing envelopes, including ream and pound goods.

PALL MALL METALLIC—Ser. No. 295,588. Wm. A. Welsh, doing business as Paper Service Company, Philadelphia, Pa. For box-covering paper.

STAMPER KRAFT—Ser. No. 295,870. The Superior Type Company, Chicago, Ill. For rubber stamps, sign markers, etc.

E P, and representation of a loose-leaf binder.—Ser. No. 296,464. Wesley H. Shirk, doing business as Engineers Publishing Company, Philadelphia, Pa. For loose-leaf forms and binders therefor.

PROMOTION BOND—Ser. No. 296,619. Waterfalls Paper Mills, New York City. For bond and writing paper.

ROCKRAFT LINERS—Ser. No. 297,733. Gibraltar Corrugated Paper Company, Inc., North Bergen, N. J. For corrugated paper boxes and cartons.

COUNTRY CLUB, and representation of a country club—Ser. No. 298,338. The Kroger Grocery and Baking Company, Cincinnati, Ohio. For paper shopping bags, wooden shopping baskets, and sugar cartons.

MINITEST.—Ser. No. 284,529. Fortuna-Werke Spezialmaschinenfabrik A.-G., Stuttgart-Cannstatt, Germany. For machines and apparatus for working and manufacturing paper and goods of paper, etc.

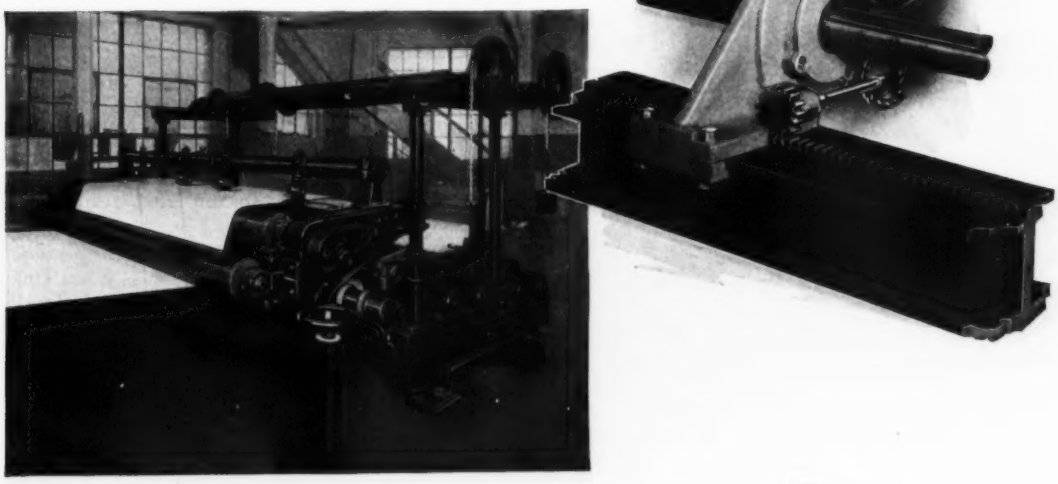
$-MY BUDGET-$.—Ser. No. 297,552. Trussell Manufacturing Company, Poughkeepsie, N. Y. For account books and binders therefor.

PERENNIAL.—Ser. No. 298,546. R. C. Noble, Inc., Cleveland, Ohio. For bond, ledger, writing, parchment, book, and index paper.

Cleaner Slitting at LOWER COST

To do a perfect job of shear-cut slitting is only a matter of having keen-edged, true-running blades.

In the new M & W Ball Bearing Slitter the problem of blade maintenance is solved in the simplest and most effective manner.



Instead of mounting the bottom blades on the main shaft and holding them by set screws, they are mounted on short independent shafts, gear-driven from the main shaft. That permits quick replacement of blades at the first sign of dullness.

The short shafts which carry both top and bottom blades are rigidly mounted in ball bearings. That eliminates wabble and vibration. The blades run *true*.

With blade nicks and wabble abolished, and slitter cracks taken out of the picture, slitting becomes the *dependable, low-cost operation* it ought to be.

You will like to learn the whole story. Shall we send the Bulletin?

THE MOORE & WHITE COMPANY
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New York Trade Jottings

The Spector Paper Company, Brooklyn, N. Y., has been incorporated under the laws of the State of New York with a capital stock of $5,000.

* * *

Ed. J. Thom, of the pulp division of the Howard Smith Paper Mills, Inc., 407 McGill street, Montreal, Que., is visiting New York this week in the interest of his organization.

* * *

Reliance Paper and Twine Corporation, New York, has increased its capital stock from 200 to 2,600 shares, of which 2,500 shares are preferred, $100 each and 100 shares common, no par.

* * *

Judge Goddard has appointed the Irving Trust Company as Receiver of the Rogg Paper Supply Company, Inc., of 4413 Third Avenue, New York. Liabilities are listed at about $4,000 and assets at about $2,000.

* * *

Shinjiro Yeda, mechanical engineer, of the Oji Paper Manufacturing Company, Tokio, Japan, who has been visiting the paper mills in various sections of the country since July, 1929, spent last week-end in New York City. He left the city on Monday night for Minnesota where he will visit the Watab Paper Company mill at Sartell. His future itinery includes visits to plants in Canada and the West Coast. Mr. Yeda plans to return to Japan some time in November.

* * *

Sustaining protests of the Oklahoma Paper Company of Galveston, Tex., H. Reeve Angel & Co. of New York, et al., the United States Customs Court at New York finds that certain machine-glazed and unglazed sulphite wrapping papers which lack the inherent and constitutional qualities and characteristics found in grease-proof and imitation parchment papers and which are unable to withstand the commercially recognized tests for determining grease-proofness in papers, are properly dutiable at the rate of 30 per cent ad valorem under Paragraph 1309 of the Act of 1922 as wrapping papers not specially provided for, as claimed by plaintiffs, rather than at the rate of 3c per pound and 15 per cent ad valorem under Paragraph 1305 of said act as grease-proof and imitation parchment papers, as classified by the collector. Judge Fischer writes the opinion.

* * *

Worthington Pump and Machinery Corporation, New York, made a creditable showing in the first six months this year despite the general business depression. Net income will approximate the $1,099,428, after all charges, reported in the corresponding half of 1929. This was equal, after preferred dividends for the period, to $4.57 a share on 129,921 shares of $100 par common stock then outstanding. This stock has since been reduced to 126,921 shares, 3,000 shares being purchased and being held in the company's treasury. On the smaller number of shares—126,921—net would be equal to $4.68 a share after preferred dividend allowance. The first six months' net income this year, hence, will cover the full year's dividend requirements of $1,010,798 on both classes of preferred stock. This amount was disbursed in the first six months, one-half of payments being at the regular rates and the other half on account of accumulations. At present, the arrearage on preferred amounts to $5.25 a share on the 7 per cent class A preferred and $4.50 a share on the 6 per cent class B preferred. This arrearage will be liquidated by an additional payment besides the regular disbursement.

New Hammermill Agent Appointed

ERIE, Pa., July 1, 1930.—The Hammermill Paper Company announces the appointment of the Southeastern Paper Company, of Louisville, Kentucky, as a Hammermill agent.

New Freight Rates Will Benefit Paper Industry

CARTHAGE, N. Y., July 14, 1930.—The entire paper industry of this section will be benefited by the decision handed down this week by the Interstate Commerce Commission calling for a revision of freight rates. The fight has been carried on for the past six years by the New York Development Association and Chamber of Commerce organizations while Joseph A. Quinlan, traffic manager of the St. Regis Paper Company, also deserves credit for the victory.

Under the new ruling freight rates on lines from Syracuse to Watertown and from Watertown to Ogdensburg will have the same basic rate as that prevailing on the main line of the New York Central and the decision means that Northern New York is placed on a competitive equality so far as industry is concerned with points on the main railroad. It is generally felt that the new rates will result in industrial stimulation throughout the entire section.

Within recent years the effect of high rates had been felt greatly and many industries hesitated to locate in this section when a saving of thousands of dollars could be secured by locating elsewhere. Consequently little appeal could be made to new industries but with the new rates all this is ended and the immense supply of hydro-electric power available should serve as an added inducement. Local manufacturers claim that the decision of the Interstate Commerce Commission is of great importance and should have a decided bearing on the future development of this entire territory. The application for revision of rates was made in 1924 by the Watertown Chamber of Commerce which was represented by J. A. Quinlan, traffic expert, at several conferences.

Notes on Hydrogen Ion Measurement

L & N Notebook No. 3, entitled "Notes on Hydrogen Ion Measurements," has just been issued. The specific purpose of the Notebook is to furnish information that will be helpful to the large and rapidly increasing number of individuals interested in measuring the acidity and alkalinity of water solutions by electrical methods. The scope of the publication is indicated by the following list of topics discussed: Meaning of Hydrogen Ion Concentration and pH Value; Electrometric Hydrogen Ion Measurements; Hydrogen Electrode; Calomel Electrode; Potentiometer principle; Assembly for Hydrogen Ion Measurements; Quinhydrone Electrode; Quinhydrone pH Indicator.

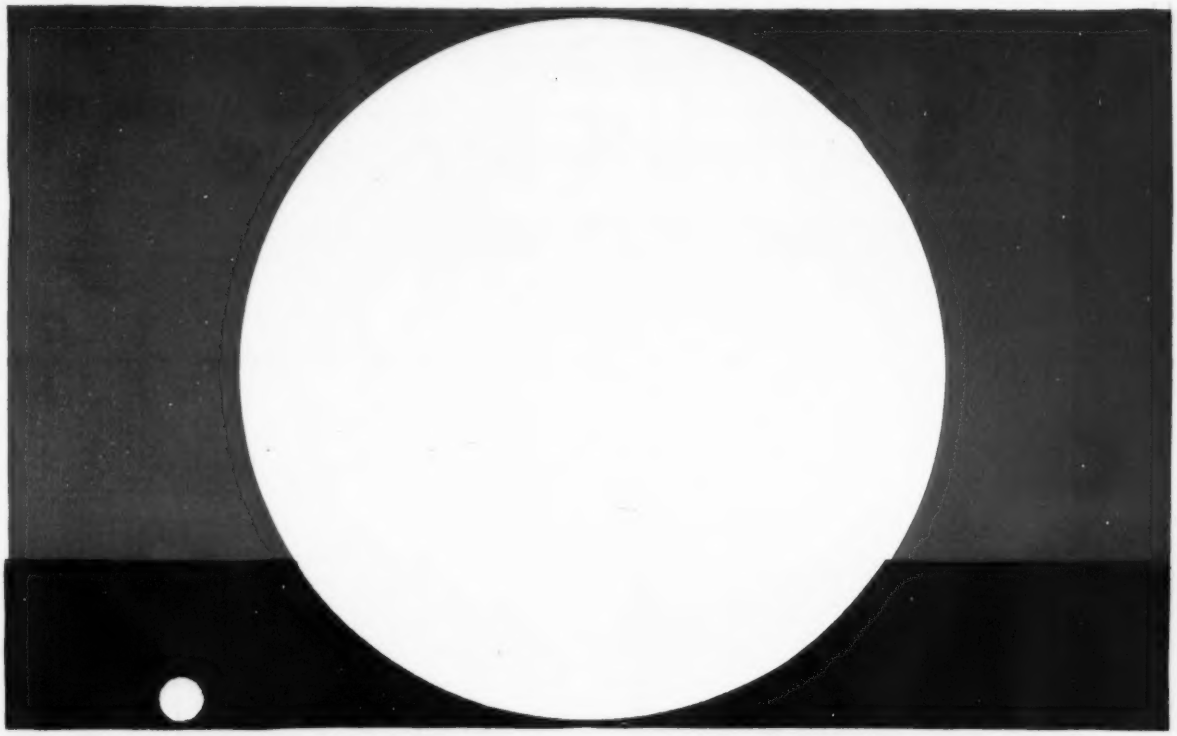
The major portion of the text is devoted to a description of apparatus employed for measuring hydrogen ion concentration or pH. It tells not only what the apparatus is but how it is used and what its limitations are. This part of the Notebook is equivalent to a manual of operating directions.

For the benefit of those who want to know why as well as how things are done, fundamental principles are briefly discussed. An attempt is made to present these in a manner and in terms which are comprehensible to one not an expert in such matters. A copy may be obtained by applying to the Leeds & Northrup Company, 4901 Steanton avenue, Philadelphia, Pa.

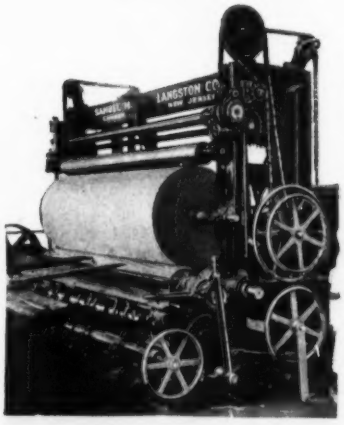
Technical and Scientific Societies

The National Research Council of Washington, D. C. has recently issued a 350 page cloth bound book entitled, "Handbook of Scientific and Technical Societies and Institutions of the United States and Canada, (second edition), Bulletin No. 76. The American section of the book has been compiled by Dr. Clarence J. West and Callie Hull. Doctor West is chairman of the TAPPI Committee on Abstracts and Bibliography.

The book lists 91 societies, giving in each case the address of the headquarters, secretary's name, history of the organization, object, membership, meeting dates, publications, and research funds. A book of this kind has been needed for some time and the present volume will readily supply much valuable information.



LIKE THE PEBBLE IN THE PRINCESS' BED



'Twas small . . . but though she slept on seventeen mattresses that pebble bothered her. The bearings in your Slitter and Winder may seem unimportant, but, of course, they are vital factors insuring smooth, economical operation and longer life. That's why Langston uses *roller and ball bearings* wherever possible.

SAMUEL M. LANGSTON CO.
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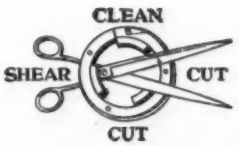


LANGSTON SLITTERS

PAPER AND PAPER STOCK IMPORTS AND EXPORTS OF THE UNITED STATES

For the Month Ending April 30, and for the Four Months Ending April 30, 1930 as Compared with Corresponding Month of Previous Year

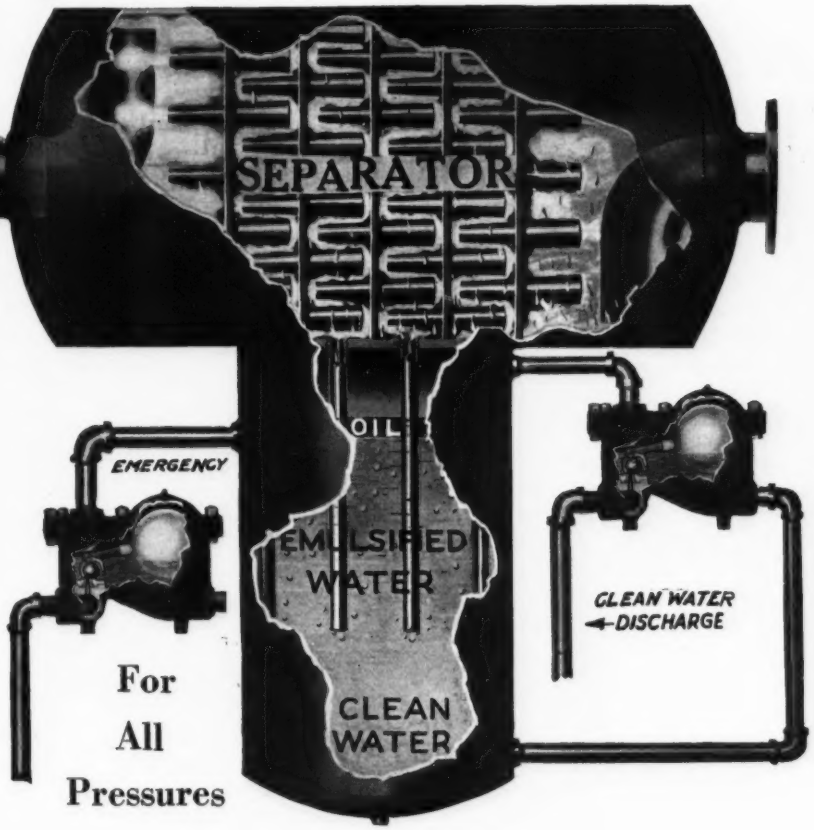
IMPORTS—PAPER

	April				Four Months Ending April 30			
	1929		1930		1929		1930	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
PAPER AND MANUFACTURES	.....	$12,128,812	.....	$12,385,754	.....	$49,915,361	.....	$48,514,247
Printing paper—								
Standard news print ..... lbs...free	356,151,699	10,657,001	372,049,528	10,884,882	1,446,564,359	44,107,538	1,452,590,366	42,357,160
Imports from:								
Finland ..... lbs.	2,414,928	55,996	7,588,478	180,652	14,909,067	368,613	32,869,387	759,453
Germany ..... lbs.	1,265,770	31,660	1,896,589	45,294	5,031,362	128,431	7,390,579	181,262
Norway ..... lbs.	1,294,023	30,547	2,546,590	60,524	4,463,897	111,368	6,525,262	155,316
Sweden ..... lbs.	5,626,450	145,086	8,999,529	207,086	31,852,015	819,686	50,395,099	1,245,701
Canada ..... lbs.	345,550,528	10,393,712	347,787,798	10,302,163	1,350,424,768	41,567,883	1,310,458,999	38,735,190
Newfoundland and Labrador ..... lbs.	.....	.....	3,230,544	89,163	39,883,250	1,111,557	44,951,040	1,280,238
Other countries ..... lbs.	.....	.....	.....	.....	.....	.....	.....	.....
All other, n. e. s. ..... lbs...dut.	258,549	11,762	309,021	15,877	1,310,485	63,860	939,347	45,496
Greaseproof and waterproof papers.... lbs...dut.	88,498	21,616	142,608	54,603	458,147	91,597	607,127	210,357
Kraft wrapping paper ..... lbs...dut.	1,209,588	51,522	761,406	28,703	3,074,707	132,234	3,230,554	129,819
Other wrapping paper ..... lbs...dut.	978,724	24,198	191,805	12,545	2,290,526	68,813	790,192	48,272
Writing, letter, drawing, etc., papers.. lbs...dut.	240,996	65,267	402,456	99,150	992,684	253,835	1,334,124	342,038
Surface-coated paper ..... lbs...dut.	238,019	105,635	208,075	86,587	833,858	366,221	810,370	314,606
Tissue, copying, etc., papers..... lbs...dut.	443,349	235,143	334,815	192,840	1,393,617	737,750	1,517,294	783,677
Paper boards, n. e. s.—								
Pulp boards in rolls ..... lbs...dut.	4,892,087	103,833	5,466,520	123,873	20,456,992	458,204	18,093,151	427,373
Paper boards, pulp board, and card-board ..... lbs...dut.	1,867,580	44,122	696,368	17,613	6,990,417	166,062	5,540,871	133,993
Leather board, test and wall board.. lbs...dut.	103,080	3,643	130,923	7,587	561,760	21,553	513,191	27,061
Cigarette paper, cigarette books, and covers ..... lbs...dut.	962,731	306,772	1,164,617	388,254	3,950,527	1,312,857	4,299,729	1,491,989
Hanging paper (wall paper) ..... lbs...dut.	158,740	52,197	203,816	59,136	1,020,368	285,831	1,206,895	313,165
Duplex, decalcomania paper, not printed lbs...free	49,886	11,996	30,218	7,326	231,888	54,741	184,374	43,795
Paper boxes ..... dut.	.....	125,517	.....	116,588	.....	482,727	.....	456,682
Pulp or paper-mâché and manufactures, n. e. s. ..... dut.	.....	27,592	.....	23,594	.....	221,279	.....	241,126
All other paper and manufactures..... dut.	.....	280,996	.....	266,596	.....	1,090,259	.....	1,147,638
WOOD PULP								
Mechanically ground wood pulp..... tons..free	20,816	521,883	18,423	472,200	71,298	1,848,261	103,117	2,891,765
Sulphite wood pulp ..... tons	76,962	4,548,364	64,084	3,820,217	318,263	18,598,385	355,596	20,822,490
Unbleached ..... tons..free	48,898	2,351,202	37,162	1,884,072	211,922	10,557,812	241,052	12,415,885
Bleached ..... tons..free	28,064	2,197,162	26,922	1,936,145	106,341	8,040,573	114,544	8,406,605
Imports from:								
Finland ..... tons	15,890	731,715	7,931	395,426	37,925	1,750,593	34,352	1,747,530
Germany ..... tons	3,575	250,784	5,052	340,709	18,631	1,269,644	28,343	1,924,303
Norway ..... tons	6,064	439,321	5,942	369,751	18,950	1,282,570	22,032	1,444,387
Sweden ..... tons	21,421	1,195,499	13,174	769,336	120,494	6,679,278	133,790	7,311,831
Canada ..... tons	29,535	1,898,256	30,411	1,871,833	115,420	7,241,579	131,508	8,112,789
Other countries ..... tons	477	32,789	1,574	73,162	6,843	374,721	5,571	281,650
Sulphate wood pulp, unbleached (kraft pulp) ..... tons..free	30,884	1,711,882	17,145	908,292	101,652	5,665,192	125,479	6,392,372
Imports from:								
Finland ..... tons	2,254	92,621	2,090	92,565	8,184	387,789	13,987	629,813
Norway ..... tons	1,263	76,537	1,638	76,558	4,242	245,502	5,249	256,711
Sweden ..... tons	18,065	958,086	6,664	329,228	49,637	2,588,806	76,171	3,686,962
Canada ..... tons	8,773	560,620	5,887	373,096	37,059	2,326,148	28,007	1,725,055
Other countries ..... tons	529	24,018	866	36,845	2,530	116,947	2,065	93,831
Sulphate wood pulp, bleached ..... tons..free	2,161	145,013	824	64,625	5,183	374,316	3,767	303,713
Other pulp ..... tons..free	490	37,039	559	39,038	1,971	144,759	1,544	112,534
CRUDE PAPER STOCK								
Rags for paper stock..... lbs...free	33,860,047	660,828	36,888,998	916,400	127,022,149	2,470,085	135,442,529	2,904,953
waste bagging, waste paper, etc. ..... lbs...free	11,589,590	155,558	12,302,644	161,556	44,963,013	554,822	42,544,662	500,618
Old rope and all other paper stock.... lbs...free	10,594,233	307,085	15,597,034	236,512	27,375,262	915,426	46,653,990	868,427
CHEMICALS AND OTHER PAPER MAKERS' MATERIALS								
Colors, dyes, stains, color acids, and color bases, n. e. s..... lbs...dut.	833,895	997,665	431,140	470,369	2,865,272	3,320,843	1,871,449	2,029,193
Imports from:								
Belgium ..... lbs.	9,428	10,860	3,398	4,081	17,899	20,485	16,860	18,865
France ..... lbs.	29,405	45,278	9,662	11,796	57,930	82,344	12,057	16,369
Germany ..... lbs.	686,511	802,011	270,729	305,703	2,110,196	2,396,114	1,090,651	1,185,323
Italy ..... lbs.	.....	.....	.....	.....	1,980	2,104	.....	.....
Switzerland ..... lbs.	97,025	125,403	124,798	128,936	628,356	768,258	705,063	765,903
United Kingdom ..... lbs.	9,168	11,193	12,270	12,387	26,770	29,547	25,501	25,619
Other countries ..... lbs.	2,358	2,920	10,283	7,466	22,141	21,991	21,317	17,114
Casein or lactarene..... lbs...dut.	3,323,520	410,673	4,204,201	434,055	12,644,195	1,493,029	11,381,931	1,306,042
Kaolin, china, and paper clay..... tons..dut.	15,398	177,426	26,629	279,946	70,859	781,896	101,044	1,068,355

(Continued on page 50)

FARNSWORTH STEAM PURIFIER

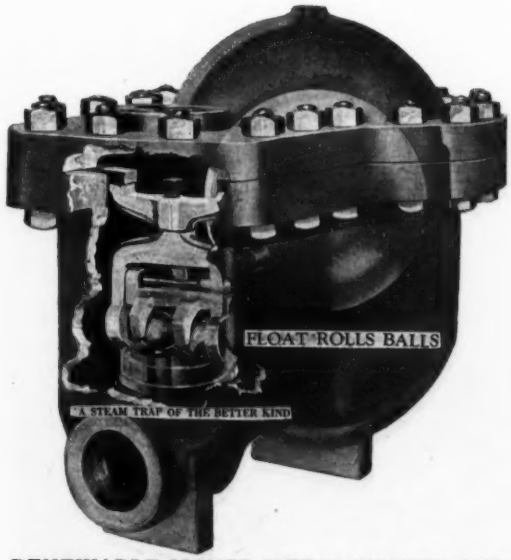
DRY STEAM



OIL OR MOISTURE CANNOT PASS

TWIN BALL VALVE DOUBLE CAPACITY TRAP

For All Pressures



RENEWABLE MONEL METAL VALVES AND SEATS FITTED WITH HERCULES HEAVY DUTY FLOAT.

STUDY

The arrangement of tapered nozzles for speeding up the steam against the baffles . . . The counterflow action throws such elements as oil, dirt, and water out of the flow of steam and deposits them against both sides of the baffles where they cannot be picked up again by the steam and are free to drain to the separate receiving chamber.

Note double emergency trap drainage which effects important insurance advantages.

FARNSWORTH COMPANY

Engineers & Manufacturers

CONSHOHOCKEN PA.

PAPER AND PAPER STOCK IMPORTS AND EXPORTS OF THE UNITED STATES

(Continued from page 48)

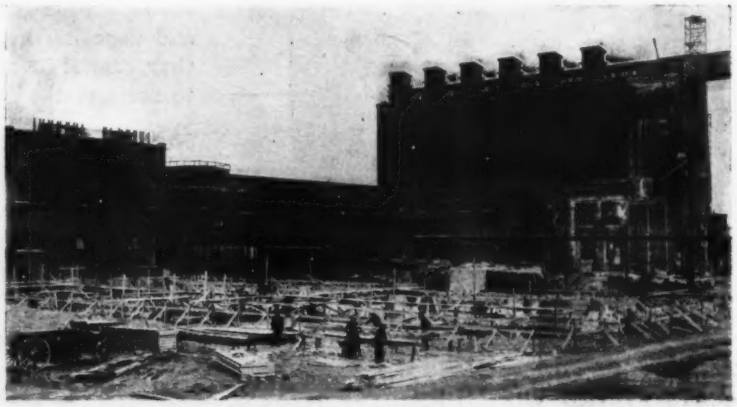
EXPORTS—PAPER

	April 1929 Quantity	April 1929 Value	April 1930 Quantity	April 1930 Value	Four Months Ending April 30 1929 Quantity	Four Months Ending April 30 1929 Value	Four Months Ending April 30 1930 Quantity	Four Months Ending April 30 1930 Value
PAPER AND MANUFACTURES	.....	$2,948,990	.....	$2,866,159	.....	$13,094,038	.....	$11,488,654
Printing paper—								
News print paper ....lbs.	1,796,659	65,622	2,046,119	98,287	11,896,676	435,248	8,953,805	371,831
Exports to:								
Europe ....lbs.	30,385	1,291	81,051	5,573	162,047	9,584	735,227	43,736
Canada ....lbs.	18,547	1,131	.....	.....	166,971	8,864	17,351	763
Central America ....lbs.	35,209	1,363	128,426	4,755	360,778	13,038	676,796	24,427
Cuba ....lbs.	224,087	7,947	244,403	10,751	1,044,968	37,832	1,132,526	46,134
South America ....lbs.	179,218	6,400	172,920	5,815	3,602,914	131,250	2,107,131	69,077
China, Hong Kong, and Kwantung...lbs.	633,118	21,840	707,218	44,716	2,421,050	81,434	1,493,888	85,128
Philippine Islands ....lbs.	608,761	22,344	603,825	22,469	3,670,828	132,008	2,415,756	85,328
Other countries ....lbs.	67,334	3,306	108,276	4,208	467,120	21,238	375,130	17,238
Book paper, not coated ....lbs.	3,331,605	232,167	3,754,113	250,236	13,411,336	949,798	14,121,041	928,718
Exports to:								
Europe ....lbs.	105,340	8,342	87,830	8,339	846,234	70,745	299,845	27,370
Canada ....lbs.	1,101,642	76,040	1,106,786	64,912	4,187,992	256,543	3,607,521	212,192
Mexico ....lbs.	26,362	3,396	78,552	9,228	173,741	19,206	284,745	29,227
Cuba ....lbs.	554,127	37,289	199,225	14,532	1,611,919	112,281	1,380,526	96,264
Argentina ....lbs.	286,083	18,865	192,043	11,895	1,084,591	88,361	428,375	28,850
Other South America....lbs.	109,645	8,619	231,477	17,637	471,203	40,822	743,050	56,229
China, Hong Kong, and Kwantung...lbs.	573,298	34,396	605,560	37,340	2,422,263	145,899	3,757,390	229,052
Philippine Islands ....lbs.	451,045	32,452	688,949	39,977	1,617,978	107,307	2,005,210	125,396
Australia ....lbs.	27,066	3,313	215,144	15,820	454,504	63,011	475,467	36,218
Other countries ....lbs.	96,457	9,455	348,547	30,556	540,911	45,623	1,141,912	87,920
Cover paper ....lbs.	166,130	28,885	143,728	24,287	676,698	119,422	850,597	137,397
Greaseproof and waterproof paper....lbs.	156,439	31,239	404,180	63,375	989,477	168,212	1,119,198	208,072
Overissue and old newspapers....lbs.	9,037,548	109,145	17,973,877	148,984	44,060,024	500,111	54,252,369	478,252
Wrapping paper ....lbs.	2,713,984	218,405	4,276,256	242,567	14,365,502	1,007,841	17,215,562	1,102,516
Surface-coated paper ....lbs.	1,422,930	123,662	1,336,344	130,533	7,311,487	651,106	3,607,340	389,925
Tissue and crêpe paper ....lbs.	325,323	75,106	415,532	79,074	1,486,483	323,262	1,956,655	343,704
Toilet paper ....lbs.	820,393	91,590	660,041	74,565	2,678,841	303,961	2,574,118	284,737
Paper towels and napkins....lbs.	345,229	36,942	371,131	40,412	1,199,976	136,239	1,405,963	162,110
Box board, paper board, and straw board..lbs.	3,818,708	103,982	4,505,951	117,344	17,439,346	464,998	20,731,534	523,073
Bristols, and bristol board....lbs.	221,359	26,148	120,545	15,069	1,037,521	105,146	941,395	84,817
Other paper board ....lbs.	2,841,803	140,013	2,847,791	140,597	13,960,526	654,178	12,585,553	638,977
Sheathing and building paper....lbs.	2,544,474	82,931	2,260,386	71,788	8,318,065	289,555	6,434,598	247,552
Fiber insulating lath or board....sq. ft.	1,061,398	37,396	6,560,286	189,927	6,847,321	230,498	22,657,033	714,214
Wall board or paper or pulp....sq. ft.	5,852,268	189,705	2,697,002	90,299	22,224,849	731,313	11,474,932	364,884
Blotting paper ....lbs.	342,060	38,340	196,145	24,749	1,307,555	150,625	1,108,645	133,751
Filing folders, index cards, and other office forms ....lbs.	122,417	46,451	155,386	50,633	566,941	203,713	568,241	200,313
Papeteries (fancy writing paper)....lbs.	57,698	15,914	40,291	10,612	223,112	54,417	211,463	45,532
Other writing paper ....lbs.	2,602,963	259,582	2,032,755	209,468	10,807,654	1,136,487	7,605,161	785,259
Paper hangings (wall paper)....rolls	....	64,220	289,560	54,847	.....	332,934	1,869,886	279,433
Paper bags ....lbs.	775,803	73,368	626,551	55,611	3,747,947	338,636	3,140,800	272,485
Boxes and cartons ....lbs.	2,319,915	164,483	2,611,812	137,417	10,392,574	652,941	8,520,991	495,226
Envelopes ....lbs.	193,705	34,593	220,125	35,410	782,484	135,467	816,216	137,677
Vulcanized fiber sheets, strips, rods, and tubes ....lbs.	503,472	139,181	396,065	97,753	2,318,380	588,896	1,700,252	421,714
Cash-register and adding-machine paper....lbs.	379,207	35,587	443,056	37,799	1,543,560	150,357	1,555,508	144,643
Other paper and paper products....lbs.	.....	484,333	.....	374,516	.....	2,278,677	.....	1,591,842
WOOD PULP AND PAPER STOCK								
Sulphite wood pulp ....tons	3,107	164,282	2,644	152,122	15,012	817,102	8,703	491,471
Soda wood pulp ....tons	26	1,996	377	29,917	494	40,118	1,129	88,832
Other wood pulp ....tons	825	43,553	1,788	70,168	2,373	156,407	3,775	151,762
Rags and other paper stock....lbs.	10,743,012	175,391	4,708,209	77,176	44,213,650	871,063	22,475,160	340,459
PAPER AND PULP MILL MACHINERY								
Paper and pulp mill machinery	.....	275,210	.....	194,485	.....	949,082	.....	982,591

New Boiler Plant at Gatineau

Work commences on the new boiler plant at the Gatineau news print paper mill of Canadian International Paper Company. The plant will cost one million dollars and will be built to house five Kidwell boilers, of which four, with an aggregate capacity of 5,200 boiler horsepower, will be installed at this time.

Plans for the boiler house were prepared by the engineering forces of the Company in conjunction with the mill staff, and the boilers are being manufactured by Canadian Vickers, Limited. The boiler house will be completed and ready for operation October 1, when electric energy now being delivered by Gatineau Power Company for the generation of steam at the mill will be released for delivery to the Hydro-Electric Power Commission of Ontario under its contracts with Gatineau Power Company.



NEW BOILER PLANT AT GATINEAU TO COST $1,000,000

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THE KRAFT SITUATION

All indications according to Major Oliver M. Porter, manager of the National Kraft Paper Manufacturers Association, point to a lessened consumption of kraft paper in 1930 than in 1929—lower commodity prices, reduced retail purchasing, car loadings, exports, power consumption, stock markets, etc., and increased unemployment with its consequent backwash all mean decreased consumptive demand.

In the face of this unmistakable evidence of the reduced consumption, the industry's productive capacity has been increased, thus intensifying the lack of balance between possible supply and demand, which has already resulted in industry-wide demoralization. Instead of trying to make two blades of grass grow where only one has grown heretofore (in respect to increased demand), the industry is trying to *force* increased consumption by capacity operations and lowered prices. This combination never has worked and never will. To yield profits, production must be kept in balance with consumer demand.

Money is cheap, consumer stocks in all major industries are low, the uncertainty of the tariff has been removed by the passage of a bill which may turn out better than many would have us believe. In short, fundamentally, we're all set for a reasonable business revival, and the consequent increase in consumer demand which will inevitably follow.

In the meantime, the kraft paper industry is faced with the same fundamental conditions all other major industries are, and in addition has the handicap—as regards its economic stabilization—of a perfectly natural conflict between the older established, higher-cost mills, and the newer, relatively low-cost mills, whose present capacity is capable of supplying 100 percent of the present demand for wrapping and bag papers.

If the low-cost mills follow a policy of full operation during this period of business recession and decreased demand, no one who thinks through to the logic of the situation can expect any other result than the necessitous effort by the Northern mills to protect their property—with consequent cut-throat competition and loss of profit for all mills and on all grades, including non-competitive specialties and conversion papers.

It all simmers down to a question of relative costs and balance between production and demand, with low-cost foreign pulp now playing a most important, though perhaps not generally appreciated, part in the present situation.

Various schemes for effecting a permanent emulsion of the market needs of the Northern and Southern mills, or a universal solvent for all the ills of the industry have been tried, unsuccessfully. These efforts will continue to be unsuccessful if the industry tries to crowd one hundred percent capacity production into a sixty percent market requirement; as long as all mills individually are unwilling to trade losses for profits; and as long as executives continue to delude and deceive their competitors and, in the long run, themselves, by unsound business and merchandising policies, without adequate statistical data and mutual confidence as the basis for cooperative effort to effect the economic stabilization of the industry.

The "kraft situation" has had a disturbing influence on the whole paper industry. Rumor, gossip, and ill-advised, untimely action, in the inevitable cut-throat competition forced on the industry by its uneconomic expansion, have played havoc with sound business principles. "Protection," special discounts, allowances, etc., have largely destroyed constructive merchandising of the kraft paper. Inside prices to so-called "super-jobbers" have made it impossible for regular mill outlets to sell in the Metropolitan market on a reasonable and profitable basis. This resulted in the ubiquitous establishment of super-jobbers with the industry's price structure all shot to pieces. The wildest marketing experiments have been rushed into; while sound, tried, constructive effort has been given no trial at all. The result has been that confidence among competing executives—so essential to constructive cooperative effort—has been seriously impaired.

The blame for the present situation can not be placed on the shoulders of any one company or group. Performance, in the industry's cooperative effort, has not matched promise—and this has by no means been confined to one or even a few companies.

Many factors have contributed to this situation:

Certain low-cost mills seem to feel that they are justified in running full regardless of the results of overproduction created by such a policy or the effect on their competitors.

There has been too rapid an increase in productive capacity, although for the most part, this has been on an economically justifiable basis of relatively low costs.

There has also been a costly unwillingness to develop a complete statisical basis for profitable cooperative effort. The importance of this has not been generally appreciated. This same is most certainly true of comparable cost analyses, market research and trade promotional effort. Necessity, expressed in terms of price, has loomed so large that the elimination of unprofitable practices through an earnest, honest effort to make the industry's Trade Practice Rules work, has been totally neglected. This has been another very costly mistake.

But—distressing as all this has been, it was largely inevitable, and from it all will unquestionably come a stronger, more reasonable, more profitable and progressive industry and a more useful association, if intelligent means are recognized and adopted.

Relative quality values will eventually be recognized, with differentials not only between Northern and Southern papers, but also for the varying qualities of the sheets themselves, wherever made.

Some uniformity in cost records will be achieved to establish an equitable, factual basis for profitable selling prices, and that without any necessity for individual mill cost disclosure.

Complete statistics will be developed covering kraft papers by grades, kraft boards, and sulphate pulp, both foreign and domestic, so that facts will replace guesswork as regards productive capacities, actual production, consumption, stocks, unshipped orders, and prices in all of the more important grades, for the information and use of the mills in determining their production and sales policies.

Market research and trade promotional effort will be cooperatively financed so as to put the whole industry, regardless of individual mills' association membership or affiliation, solidly back of an adequate and persistent effort to create new demand and new markets, both here and abroad.

There will be frequent meetings of executives to determine policies which will then be carried out by their sales, manufacturing and engineering staffs, in cooperation with the industry's associations, both of manufacturers and distributors.

And, finally, a natural price stabilization, based on a balance between supply and demand, will be effected, legally, and maintained through controlled distributing channels.

This can be done, and will be done when the industry has suffered enough from the present situation, and when its executives have become convinced that in union there *is* strength, and that intelligence and honesty in cooperative effort *is* the best policy.

The kraft paper industry has ability enough and intestinal fortitude enough to back a profit-making program to success —and it will, when the force of economic necessity compels mills to do that which they have heretofore been unwilling to do, individually and voluntarily. The industry must and will have profitable markets and profitable markets can be expected only where there is reasonable balance between supply and demand, with consequent elimination of unnecessary cut-throat competition.

The industry and its responsible executives can not afford to "kid themselves" in respect to the policies of any individual mill or group of mills, nor as regards the relation of general economic conditions to the kraft paper situation. Sooner or later action will have to be taken on the basis of facts. It can be taken intelligently and cooperatively to the profit of all concerned, or it can come only as the result of the inexorable functioning of the economic law of supply and demand, which recognizes no geographical limitations or other controlling factors than those of costs, quality, service, and consumer demand.

Ship Machinery for Longview Mill

PORTLAND, ORE., July 11, 1930.—Six carloads of machinery, the last shipment for the Longview Fibre company's new boxboard plant at Longview, Wash., was unloaded July 3 by the American-Hawaiian liner *Oregonian*, coming from a factory in Ohio. J. Clifford Page, formerly of Brooklyn, Ohio, who will be superintendent, is supervising the installations. About 80 persons will be employed, half of them women.

TAPPI Fall Meeting At Erie

The Erie, Pennsylvania, members of the Technical Association of the Pulp and Paper Industry are arranging for one of the largest fall meetings in the history of the organization. The meeting will be held on September 3, 4, and 5, 1930 with headquarters at the Lawrence Hotel.

There are few more accessible paper mill centers than the home of the Hammermill Paper Company, located on the sandy shores of Lake Erie and on the main line of the New York Central Railroad between Buffalo and Cleveland. Erie is a great industrial center and at the same time it is a summer resort, a mecca for many who wish to take advantage of its summer breezes from Lake Erie and Canada.

In its first meeting the local committee under the general chairmanship of Henry F. Obermanns, general superintendent of the Hammermill Paper Company, a charter member and former vice president of the Technical Association, has outlined an unusually well balanced program of subjects for discussion, plant visitations, recreation and get-togethers that will make it distinctly worthwhile for every mill executive, superintendent, engineer and chemist in the industry to attend.

The local committees include the following:

Administration.—F. P. Klund, chairman, J. A. Bowers, W. F. Bromley, P. W. Herrick.

Program.—Bjarne Johnsen, chairman, C. R. Tait, A. O. Spierling.

Publicity.—John L. Parsons, chairman, Earl Neubig, H. B. Dawson.

Arrangements.—C. H. Reese, chairman, H. M. Holmes, Eric Wahlforss.

Ladies.—To be announced.

Erie is well equipped with hotel facilities. The Lawrence Hotel, the largest in the city has been designated as general convention headquarters but comfortable and convenient accomdations are to be had at the Ford and Reed Hotels. Members should in every case make their reservations directly with the hotel of their choice. Since the facilities at the headquarters hotel are necessarily limited, those desiring reservations at the Lawrence should make them promptly. Garages are convenient to all hotels. Further information regarding accommodations may be obtained from C. H. Reese, Hammermill Paper Company, Erie, Pennsylvania.

Following are the TAPPI convention rates:

Hotel	Room Rates			
	Single		Double	
	with bath	without bath	with bath	without bath
Lawrence (Headquarters)	$3.00–5.00	$2.50–3.00	$4.50–8.00	$3.50–4.00
Ford	2.00–2.50	1.50	3.50–4.00	3.00
Reed	2.50–3.00	1.50–2.00	4.00–5.00	3.50

In view of the popularity of the past few Technical Association conventions and the great growth of this organization during the past two years, it is strongly recommended that early reservations be made. The location of the meeting at Erie which may be so easily reached assures a large attendance and the caliber of the local committee is a guarantee that the coming fall meeting will be one of the great events of the pulp and paper industry in the United States.

Finland Exports More Pulp and Paper

[FROM OUR REGULAR CORRESPONDENT]

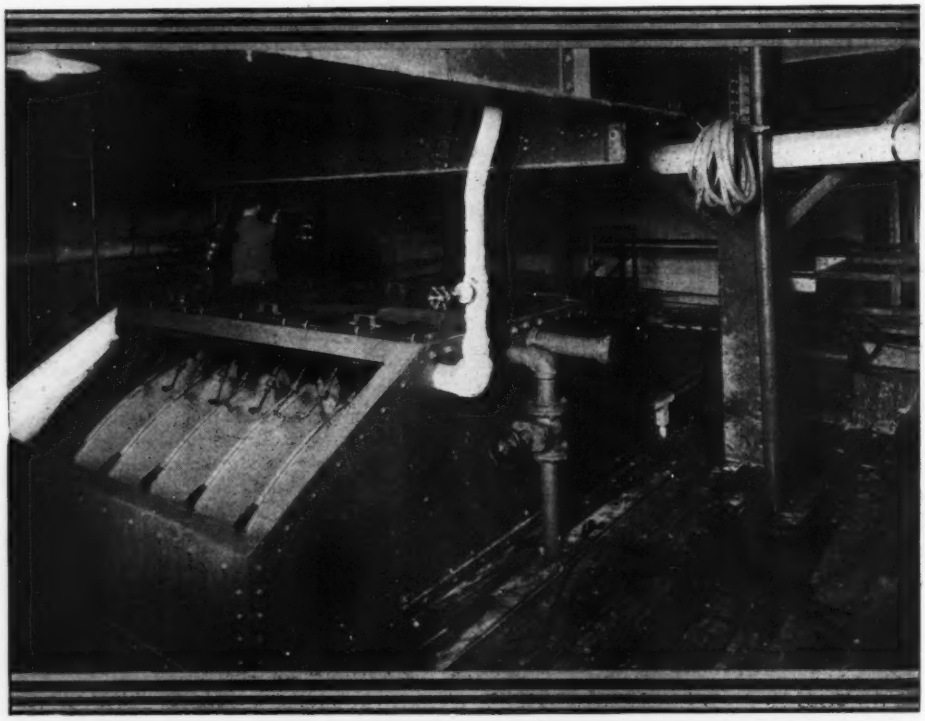
WASHINGTON, D. C., July 9, 1930.—Exports of pulp and paper from Finland during the first four months of the current year have been generally larger than during the corresponding period of last year. Mechanical pulp, of which 47,280 metric tons were shipped, were 50 per cent greater than in 1929, while exports of sulphite have increased by 11 per cent and sulphate by 18 per cent. In the paper group, news print shipments of 63,752 tons exceeded those of the first five months of last year by 24 per cent, wrapping paper increased by 192 per cent, and boards by 13 per cent.

Here Are Oliver United Save-All Advantages Nos. 1 and 2

High Fiber and Filler Recovery

Filtrate Suitable for the Showers

And Nos. 3 and 4 Are Fully As Important



MANY a mill is up against it, seasonally at least, on account of contaminated water. But those mills using the Oliver United Save-All are finding a way to combat this trouble. The Save-All filtrate is so clean that it can be returned to the system, thus greatly reducing the amount of fresh water needed.

That's advantage No. 3 and one that is saving many a mill lots of grief.

Advantage No. 4 is that alum requirements are greatly reduced. In many instances the savings in alum alone—to say nothing of fiber recovery—proved the investment in Oliver United Save-All a profitable one.

Why not let an Oliver United Save-All make profits for you?

TIMMINS, ONTARIO
B. D. Kelly
HALLE, GERMANY
Wilhelm Lill
SCHEVENINGEN, HOLLAND
and SOERABAIA, JAVA
Van Lelyveld & Co.
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150 Southampton Row
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Concessionaire
63 Ave. des Champs Elysees

JOHANNESBURG
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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

The Delthirna Sizing Process

By R. de Saint Hilaire[1]

The word Delthirna is derived from three names: DELcroix, THIRiet and NAvarre; the first two being the names of the chemists whose elaborate works have led to the discovery of the process and who are in charge of the research laboratory owned by the Papeteries Navarre of France.

To make a solution containing rosin in its most dispersed state was the problem to be solved, provided this operation could be effected as economically as possible and with a uniform rosin content. It is clear that the more dispersed a material may be, the greater will be the surface of a given weight of this material and the easier will be the fixation on the fibers and the greater the surface of these fibers that can be covered.

Research Results

Researches have been made at first towards making soaps containing a high percentage of free rosin, saponification being effected with the smallest quantity possible of alkali. This process would have the attractive advantage of allowing a reduction of alum consumption. Experiments made in this respect have proved that it was extremely difficult to obtain uniform results and it has been furthermore ascertained that the higher the percentage of free rosin, the bigger the dimensions of its particles, which is a big disadvantage as far as sizing power is concerned.

It was then determined to find improvements on the work of the well known English physician Lorenz who, in 1905 had studied the possibilities of dispersing rosin by using a colloid mill. Experiments carried out very carefully have led the inventors to the conclusion that a colloid mill is too delicate and too precise an apparatus to be employed in a paper mill. It has to be regulated with an extreme accuracy and it readily gets out of order through continual use, thereby rendering it difficult to obtain constant results. Furthermore even if the operation is effected under the most favorable conditions and with a small quantity of a stabilizing agent (such as caustic soda) the resulting emulsions are yet too coarse and the rosin particles have a great tendency to aggregate and settle down.

Under these circumstances investigations have been further conducted towards the making of combined rosin solutions. The quality of rosin soaps have been improved by adding small quantities of ammonia thereto. This operation allows a better dispersion of rosin but apart from the fact that ammonia is expensive, the results obtained were not satisfactory enough. Inventors therefore decided to study again the rosin saponification from the very beginning. A series of experiments have been carried out to study the different actions of alkalies on rosin, by changing successively the nature and concentration of alkali, the temperature, and all other conditions in which the operation could take place. These experiments have led the inventors to the conclusion that transparent solutions of sodium resinate could be obtained by caus-

[1] Technical Director, Procedes Navarre, Lyons, France.

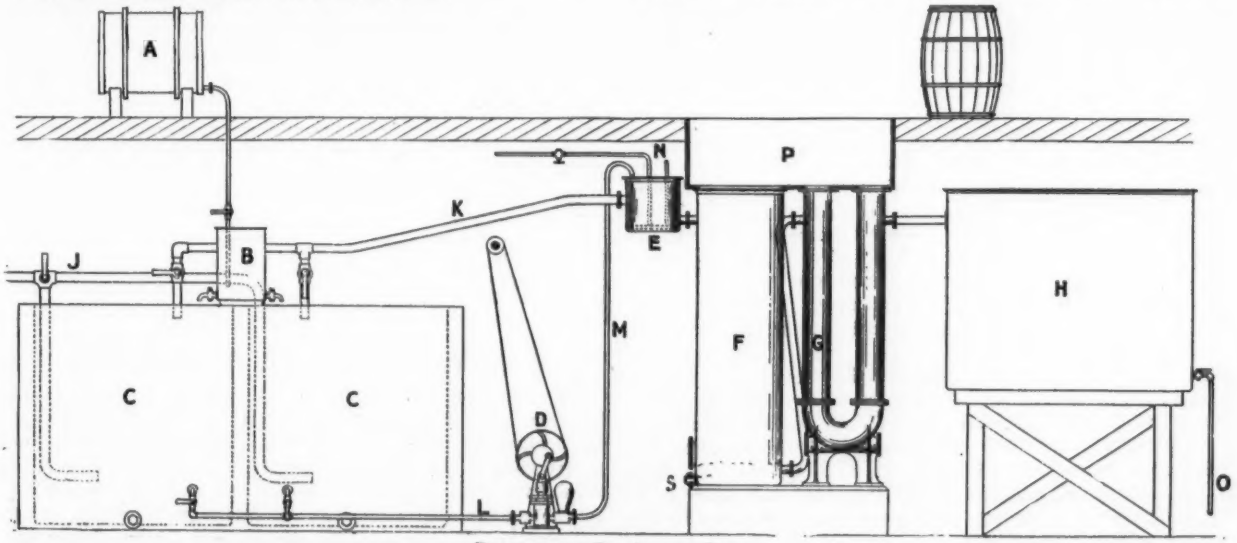

DIAGRAM OF DELTHIRNA PLANT

A—Strong Caustic Liquor. B—Strong Soda Measuring Tank. C—Dilute Soda Tanks. D—Dilute Soda Pumps. E—Overflow Tank. F—Large Rosin Tube. G—Rosin "U" Tubes. H—Delthirna Tank. J—Water Delivery Pipe. K—Soda Overflow Pipe. L—Soda Suction Pipe. M—Soda Delivery Pipe. N—Steam Heater Coil. O—Delthirna Delivery Pipe.

ing a cold and diluted soda solution to act directly on pieces of rosin. The resulting solution is not colloidal but a true solution in which the sodium resinate is present entirely in a molecular state, which is the best possible dispersion. Another series of experiments have been carried out in order to ascertain what would be the most suitable apparatus to obtain constant solutions saturated with rosin.

The Delthirna process can therefore be described as follows: "A process comprising the single step of passing a cold solution of caustic soda having a concentration of less than ten grams per litre directly over roughly ground rosin, thus obtaining a true solution of the constituents of rosin immediately from such treatment. This cold rosin solution can be directly employed in the beaters."

Description of Process

Fig. I is a diagram of a Delthirna plant. The apparatus itself comprises a series of iron tubes, namely one big tube F in which the solution circulates downwards and several U tubes (only one U tube G is shown on the figure), in which the solution circulates downwards and upwards. C are the diluted soda tanks, D is a small plunger pump, E is an overflow tank, H is a tank receiving the resulting rosin solution. The tubes are filled up with broken rosln through a rosin hopper P. The diluted soda solution is prepared in the tanks C; the necessary quantity of soda can be easily determined according to the capacity of the tanks; if solid caustic soda is used, a given weight of it will be dissolved in the tanks; with concentrated caustic soda soluton, A, a predetermined volume of it is measured in the measuring tank B. The tanks are in use alternately every one having a sufficient capacity of liquid to contain the necessary solution for 24 hours' consumption. As the caustic soda precipitates the carbonates contained in the water, the sediment thus formed at the bottom of the tanks must be removed from time to time. The pump D sends the solution from C into the tank E. This pump is so regulated as to maintain a constant flow of solution for the production of rosin size slightly in excess to the average consumption of the mill. From the tank E the solution passes through tube F and through tubes G, getting richer in rosin, so as to be saturated with rosin before going out of the last tube. It then flows in reserve tank H where it is ready to be used in the beaters. When the reserve tank is full, the level of the liquid rises in all the tubes until it reaches the overflow pipe K, thus allowing the caustic soda solution to flow back to the tank from which it came. Tube F is fitted with a perforated double bottom which allows rosin impurities to settle down, thus assisting in the purification of the rosin. These impurities can be removed from time to time through a special discharge S. The tanks C and H can be made of iron, bricks lined with cement, or concrete; the pump, pipings and tubes are made of iron.

Discovered in 1925, the Delthirna process was exploited first in France in 1926 and then throughout Europe. Most of the mills of South America adopted this process during 1928. A Canadian patent was issued in 1929, whereupon several Canadian mills are now using it. European and Canadian paper manufacturers using this process have indicated that it presents many advantages, and can effect substantial savings, such as:

SAVING OF ROSIN. Through perfect dispersion of rosin in the size, the rosin adheres more tightly to the fibers. The sizing power of the solution being greater, less rosin has to be used to size a given quantity of paper.

SAVING OF STEAM. The whole operation being effected at a temperature of about 60 deg. F., and can be carried on up to 110 deg. F., without producing any change in the resulting solution.

SAVING OF LABOUR. Once the tubes are filled with rosin and the solvent is prepared, which is done once every 24 hours, the plant is left to work automatically.

UNIFORMITY OF ROSIN SIZE. The rosin solution reaching its saturation point contains 40 grams of rosin per litre and this concentration is kept automatically constant.

SUPPRESSION OF ROSIN SPECKS. As no coarse particles of rosin are present in the solution there cannot be any rosin specks coming from the size in the paper.

QUALITY OF ROSIN USED. This process can use any quality of rosin.

NO INCREASE OF ALUMINUM SULPHATE. The quantity of aluminum sulphate used with the Delthirna process is at the most equal to the quantity used in the ordinary processes. Many mills have even noticed a saving amounting to 10 or 15 per cent.

Together with Professor Oman, the famous sizing specialist we can conclude that the Delthirna process is "a step forward" in the difficult operation of paper sizing.

TAPPI Notes

Earle W. Woodhall, for some time chemist with the Dixon Board Mills of Carthage, Ind., has gone with the Container Corporation of America's plant at Cincinnati, Ohio.

Harry W. Glenn, beater engineer at Northwest Paper Company, Cloquet, Minn., is now at the Camas mill of the Crown Willamette Paper Company.

Henry Perry, for some time chemist with A. D. Little, Inc., in Cambridge, Mass., is now with the J. P. Lewis Company at Beaver Falls, N. Y.

Edwin C. Jahn, who was recently the TAPPI American-Scandinavian Fellow at Holmens Bruks A/B in Hallstavik, Sweden, has returned to the United States. In August Doctor Jahn expects to take up his new duties as professor of cellulose chemistry at the University of Idaho.

Clifford E. Peterson has left the Rap-In-Wax Paper Company in Minneapolis, Minn., to take a position as chemist for the Riegel Paper Corporation at Riegelsville, N. J.

J. C. Gayler, formerly with the Albany Felt Company, of Albany, N. Y., is now with Filtration Engineers, Inc., Newark, N. J.

OMISSION

In the article entitled, "The Institute of Paper Chemistry," published in the July 3 issue of the PAPER TRADE JOURNAL, the name of Hugh Strange, president of the John Strange Paper Company, was omitted from the list of the board of trustees of the Institute.

New TAPPI Members

R. R. Baker, general engineer, Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa.

H. P. Cannon, planning department, Container Corporation of America, Manayunk, Pa.

L. I. L. Durchman, research chemical engineer, International Paper Company, Glens Falls, N. Y.

R. E. Harter, sales engineer, Staley Sales Corporation, Decatur, Ill.

W. D. Littlefield, Pulp and Paper Tester, Strathmore Paper Co., Mittineague, Mass.

W. T. Marble, student, Pratt Institute, Brooklyn, N. Y.

R. W. Perry, director, Perry Testing Laboratory, Detroit, Mich.

H. L. Vanderberg, service engineer, Staley Sales Corporation, Decatur, Ill.

H. W. Vrooman, chief chemist, Bennett Ltd., Chambly Canton, P. Q.

F. C. Dewar Interested in Pulp and Paper

PORTLAND, ORE., July 11, 1930.—F. C. Dewar of Ayr, Scotland, has been visiting the Pacific northwest on his recent American tour, where he is evincing particular interest in the pulp and paper industry. Mr. De War is a director in two British corporations that are figuring on activities in this field sometime in the future, and while in the district he thought it interesting to get some general information on the outlook. Mrs. Dewar accompanied her husband.

Rate of Flow Test For Evaluating Ground Wood *

By L. A. Carpenter,[1a] E. R. Schafer [1b]

Summary

The variation in the rate with which water will flow through different ground-wood pulps has been used to measure their physical properties. This paper gives a description of a rate of flow test developed at the Forest Products Laboratory and a mathematical treatment of the test data.

The rate of flow of water under constant head through a mat of pulp deposited from a pulp suspension on to a fine meshed wire continually decreases with respect to time and has been found to be expressed by an algebraic equation. The constants in this equation are defining characteristics of the pulp. It is believed that the application of the test will aid in obtaining a better evaluation of ground-wood pulps and will result in the production of more acceptable grades.

Introduction

The Forest Products Laboratory is conducting investigations to increase the utilization for pulp and paper of aspen in the Eastern and Lake States and of black gum in the Southern States. This program calls for the production of acceptable grades of ground-wood pulp from these species. Better methods for evaluating ground-wood pulp are particularly needed for this work. The study of ground-wood evaluation reported here, was made to meet this need.

The varying degrees to which different pulps absorb or retain water is apparent to all who work with these materials. This is manifested by the degree of ease with which the water may be drained or squeezed from a given pulp. The result of this "hydration" is reflected directly in the behavior of the pulp on the paper machine wire and in the properties of the finished paper. The importance of being able to measure this property of pulp has led to much experimenting and theorizing as to its cause and control.

The tests most frequently used for measuring this property in ground-wood pulp are the "freeness" (or "slowness") and the "sedimentation" tests. They have been frequently described and apparatus for carrying out the tests are well known. Essentially these tests determine the relative amounts of water that will be strained through a mat of pulp on a fine meshed screen, under the continually varying conditions of increasing mat of pulp and decreasing head of water. The results obtained have been very useful in controlling grinder and paper machine operation and as an aid in the control of beating; they have also been used in attempting to evaluate pulp strength. However, most authorities concede that freeness, as at present determined, is an empirical test, measuring no single fundamental property, and that the use of freeness values for the above purposes is, to say the least, misleading. The variable conditions of the test can hardly result otherwise. However, if this objection could be overcome and some method developed by means of which all variables would be under control this flow of water through pulps should be relatable to fundamental pulp properties. These considerations have led to the development of the rate of flow test described here.

Rate of Flow Test

To the writer's best knowledge the measurement of the rate of flow of water through a mat of pulp formed on a fine meshed wire from a pulp water suspension was first described by Campbell[2]. In this method water flows into an apparatus through a standard capillary tube and out through a mat of pulp. The resistance offered by the pulp to the flow of water causes the water to rise in the apparatus until the rate of flow through the pulp is just equal to the rate of flow through the capillary. The height to which the water rises in the tube is taken as the freeness value. Certain essential ideas embodied in Campbell's method were used in developing the Forest Products Laboratory rate of flow test described here.

Apparatus

The Forest Products Laboratory apparatus used in obtaining the rate of flow of pulps is shown in Fig. 1. It consists of a suction flask (*a*) into which water flows maintaining a head up to the side overflow tube. This flask is connected to a brass column (*b*) by means of siphon with a stock cock (*c*). The column (*b*) is ⅞-inch inside diameter and 12 inches high and is fitted with five side tubes each ¼ inch in diameter so that various heads of water may be used if desired. In the work thus far only the lowest head has been used. The use of the other side tubes is planned for future work. The column (*b*) is fastened to a tube (*d*) by three wing nuts and made water tight by means of a soft rubber gasket. The tube (*d*) is a thick walled glass tube 1¾ inches in diameter and 4¾ inches high and is cemented with shellac to brass fittings. The two brass fittings are connected by three small brass tie-rods which lend rigidity to the assembly and aid in protecting the glass tube from breakage. A piece of 60-mesh wire screen is soldered on the top of the inner wall of a brass cone (*e*). This cone is connected to a tube (*f*) fitted with a pinchcock (*g*) and a side air inlet tube (*h*).

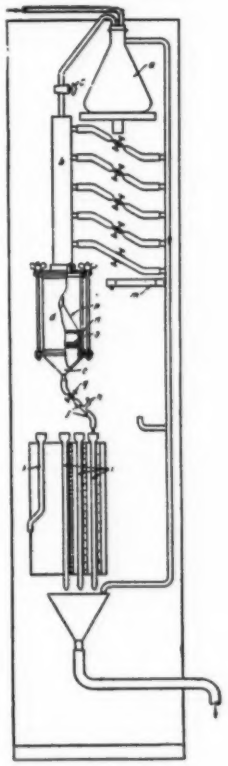

FIG. 1
Rate of Flow Test Apparatus.

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* Presented at the annual meeting of TAPPI, Pennsylvania Hotel, New York, N. Y., Feb. 19, 1930.

[1a] Junior chemist, Forest Products Laboratory, Madison, Wis.

[1b] Assoc. member TAPPI, associate engineer, Forest Products Laboratory, Madison, Wis.

[2] Campbell's Freeness Tester for Pulp. Paper Trade J. 85, 16, 52 (Oct. 20, 1927). Developed at the Canadian Forest Products Laboratory, Montreal, P. Q. U. S. patent 1,627,000, May 3, 1927.

Tube (*f*) opens into a set of three calibrated tubes (*i*) with which it is possible to read the instantaneous flow rate within the limits of 10 cc. per minute to 220 cc. per minute. These tubes were made and calibrated in the following manner. One end of each was held in a flame until the opening was made to the size desired or until each tube had an opening different from the other two. Water at a constant temperature of 20°C. was run into each tube and the head of water marked on the tube for several rates of flow through the orifice. The several heads and rates of flow were plotted and a smooth curve drawn through the points. Readings of head corresponding to rates of flow taken from the curve enabled a scale to be made and fastened to the tube. The tubes were so made that the scales overlap a small amount, which simplifies changing from one tube to another. The smaller the diameter of these tubes, the more accurate will be their readings. Those now in use are about ⅛ inch inside diameter. They also have a short piece of ¼ inch glass tubing sealed to the upper end to facilitate the introduction of water from the mat. In addition to these calibrated tubes is a tube (*k*) with which it is possible to obtain the total quantity of flow if desired in preference to instantaneous flow rate.

A sleeve (*n*) is used to prevent agitation of the pulp mat (*o*) upon the addition of water. This sleeve is a hollow brass cylinder 1¼ inches long having a wall thickness of 1/16-inch. The outside diameter is 1 11/16 inches and allows the sleeve to slip easily into the tube (*d*). A piece of 60-mesh wire screen is soldered to the bottom of the sleeve. Below this screen is soldered a small ring of the same diameter and wall thickness as the sleeve and 1/16 inch in height. The purpose of this ring is to prevent the wire screen in the sleeve from resting directly on the pulp mat. When the sleeve is lowered on to the mat the ring on the bottom sometimes entraps a small amount of air, particularly when the wire screen is wet. To prevent this entrapment five small holes about 1/16-inch in diameter are punched near the center of the screen. A circular piece of sheet metal is soldered to the top of the sleeve in such a way as to leave 1/16-inch clearance between its edge and the inner side of the sleeve. The purpose of this is to break the fall of the water flowing to the tube (*d*).

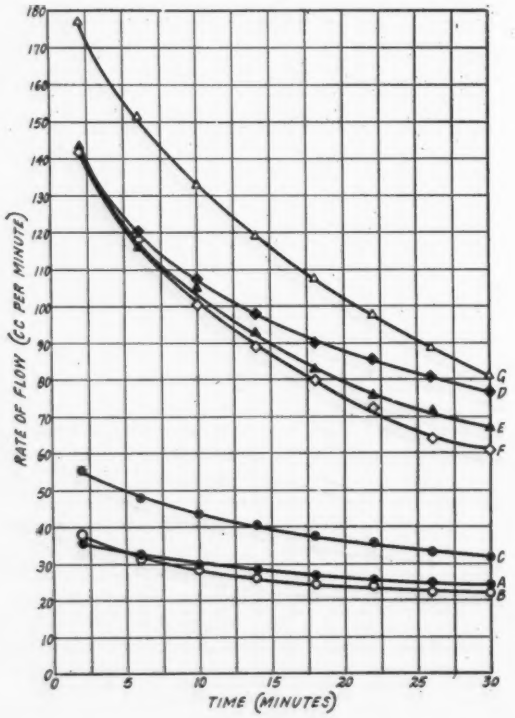

FIG. 2

Variation of Rate of Flow with Time for Seven Types of Ground Wood Pulp. Curves Are Lettered to Correspond to Pulps in Table I.

PROCEDURE

For the rate of flow test, pulp equivalent to 5 grams, oven dry, is thoroughly mixed with water in an electric driven mixer and the suspension diluted to 1 liter. Tube (*d*) is placed on a holder (*m*) and 100 cc. of the pulp suspension poured into it. Pinchcock (*g*) is opened allowing the effluent to run to the drain. When sufficient water has drained through so that the suspension occupies the volume up to about ½-inch from the screen, the closely fitting sleeve (*n*) is lowered gently on to the mat (*o*) by means of the wire (*p*) and pinchcock (*g*) is closed. Tube (*d*) is then fastened to column (*b*) by the wing nuts. The sequence of operations should follow each other promptly so that 30 seconds after lowering the sleeve, water may be started into the column (*b*) through the siphon. When the head of water reaches the level of the desired side tube the pinchcock (*g*) is opened and the flow of water directed into the appropriate calibrated tube. Simultaneously with the opening of (*g*) a stop watch is started and readings of the rate of flow are made at the desired intervals of time.

DISCUSSION

If water is allowed to run under a constant head and at a constant temperature, through a mat of pulp deposited on a screen in the manner just described, the rate of flow is noted to decrease with time. The cause of this retarded flow cannot be attributed to changes in the physical properties of the pulp. It must be caused by rearrangement of the fibers in the pulp mat. Presumably the only rearrangement possible under the conditions of the test is a packing down of the pulp in the mat. Campbell has called this the "elastic properties" of pulp.

The variations of the rate of flow with time for several types of ground-wood pulp are shown in Table 1 and the data are plotted in Fig. 2. It would appear from these curves that the relation of the rate of flow to time is a characteristic of the pulp. Some of the pulps have a high initial rate of flow which decreases rapidly with time, others have a low initial rate of flow which decreases slowly with time, and still others are intermediate. How can these phenomena be interpreted in terms of pulp properites? If the rates of flow were constant with respect to time,

TABLE 1

VARIATION OF RATE OF FLOW WITH TIME FOR VARIOUS GROUNDWOOD PULPS

Pulp designation	Species*	Rate of flow (per minute) at— 2 min. cc.	6 min. cc.	10 min. cc.	14 min. cc.	18 min. cc.	22 min. cc.	26 min. cc.	30 min. cc.
A	White spruce**...	36.3	32.2	30.0	28.2	27.0	25.7	25.0	24.0
B	Jack pine	38.2	31.6	28.2	26.3	24.7	23.5	22.5	21.8
C	Aspen	55.5	48.0	43.5	40.2	37.5	35.2	33.2	31.5
D	Longleaf pine....	144.0	120.5	107.5	98.0	90.0	85.2	81.0	76.4
E	Eastern hemlock..	143.0	116.0	105.5	93.0	83.0	76.0	72.0	67.0
F	Sitka spruce.....	142.0	118.0	100.5	89.0	80.0	72.5	64.0	61.0
G	Black gum.....	177.0	151.5	133.0	119.0	107.5	98.0	89.0	81.0

* These pulps are types of groundwood and are not to be considered as representing the mechanical pulp characteristics of the particular species.
** Commercial grade.

that is, if the curves were horizontal straight lines, the rate of flow itself might possibly be correlated with certain pulp properties. However, since the rate of flow varies with time in a characteristic manner for each pulp it is desirable to determine numerical expressions which measure these characteristics and to interpret them in terms of pulp properties. Such numerical values are the constants in the equation of the rate of flow-time curve. This paper deals with the mathematical treatment of the data to obtain these constants. The correlation of the constants with pulp properties will follow in a subsequent paper.

MATHEMATICAL TREATMENT OF RATE OF FLOW DATA[3]

The practice of plotting experimental data in various ways so

[3] Acknowledgment is made to C. C. Heritage, formerly of the Forest Products Laboratory, for valuable criticism in connection with this mathematical development.

as to obtain straight lines is well known. If the data are plotted on semi-logarithmic paper and a straight line results the general equation of the curve is:

$$\log y = bx + \log A \quad (1)$$

Where: b = the slope of the curve
A = the intercept on the y axis when x = 0

When the data in Table 1 were plotted with the time in minutes on the logarithmic axis and the rate of flow in cc. per minute on the uniform axis, the result in almost every case was not a straight line but a curved one. However, if the relation is of the type of equation (1) it may be possible to introduce a constant into the equation which would have the effect of moving the curve up or down the logarithmic axis until a straight line is obtained. Considering this to be the case, then, equation (1) will take the more general form

$$\log (T + c) = bR + \log A \quad (2)$$

Where T = the time in minutes (substituted for y in equation 1)
R = the rate of flow in cc. per minute (substituted for x in equation 1)
c = the constant introduced to straighten the line.
b and A as in equation (1).

The value of the constant (c) may be found approximately by trial and error graphical methods or more precisely by computation[4]. The method presented here involves the use of graphical calculus[5] and is more suited to the subsequent handling of the data.

For mathematical treatment the equation is most conveniently expressed by

$$T + c = A10^{bR} \quad (3)$$

Differentiating equation (3) with respect to R,

$$\frac{dT}{dR} = Ab10^{bR} (\log_e 10) \quad (4)$$

and multiplying equation (3) by b ($\log_e 10$),

$$b (\log_e 10) (T + c) = Ab10^{bR} (\log_e 10) \quad (5)$$

Hence,

$$\frac{dT}{dR} = b (\log 10) (T + c) \quad (6)$$

which is the form of a linear equation. Thus if $\frac{dT}{dR}$ were plotted against T on Cartesian coordinates a straight line would be obtained with a slope of (b $\log_e$ 10) and an intercept of (—c) on the T axis.

Values for $\frac{dT}{dR}$ are obtained by graphical methods. The manner of obtaining the derived curve from the experimental data, graphically, is as follows: In Table 2 the values obtained for (R) and (T) for pulp C are set down in vertical columns 1 and 2 and the corresponding increments of time and rate in columns 3 and 4. When ΔT is divided by ΔR a ratio is obtained whose value becomes equal to $\frac{dT}{dR}$ when ΔR approaches zero. By plotting values of the quotient $\frac{\Delta T}{\Delta R}$ against T as a straight line parallel to the (T) axis and equal in length to the value of ΔT, (Figure 3) it is possible to draw a curve through these line increments in such a way that the average area of the little triangles above the curve is equal to the average area of the little triangles below the curve. In the present case if the data follow equation (6) the curve so drawn is a straight line.

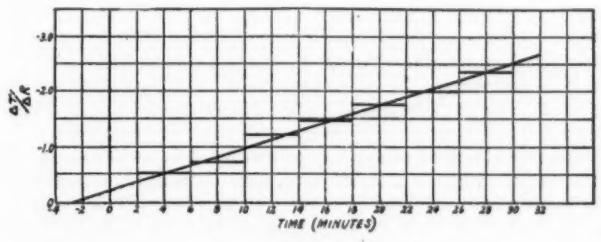

FIG. 3

Relation Between $\frac{\Delta T}{\Delta R}$ and Time for Pulp C Where R is the Rate of Flow at the Time T.

[4] Graphical and mechanical computation, Lipka; John Wiley and Sons Co.
[5] Mathematics for chemical engineers, Running. Presented at 1929 summer meeting of the American Institute of Chemical Engineers. Graphical Mathematics, Running; John Wiley and Sons Co. Empirical formulas, Running; John Wiley and Sons Co.

TABLE 2

CALCULATION OF $\frac{\Delta T}{\Delta R}$ FOR ASPEN GROUNDWOOD PULP (C)

R *	T	ΔR	ΔT	ΔT/ΔR
cc. per minute	Minutes			
55.5	2			
		—7.5	4	—0.53
48.0	6			
		—5.5	4	—0.73
43.5	10			
		—3.3	4	—1.21
40.2	14			
		—2.7	4	—1.48
37.5	18			
		—2.3	4	—1.74
35.2	22			
		—2.0	4	—2.00
33.2	26			
		—1.7	4	—2.35
31.5	30			

* R is rate of flow at the time T.

The derived curve shown in Fig. 3 for the pulp C. is a straight line and is typical of the other pulps tested. From Figure 3 the T intercept is found to be —3, hence the constant c for this pulp is 3. Then by plotting (T + 3) against R with the former on a logarithm scale, a straight line is obtained showing that the data follows the relationship of equation 2. The equation of the curve may be obtained from the semi-logarithm curve where A is equal to the T intercept and b equal to the slope. The semi-logarithmic plots are shown in Figure 4 for seven ground-wood pulps and the constants of the curves are shown in Table 3.

Rate of Flow Test May Be Used for Control Purposes

The above treatment might be considered too complicated for the test to be of value as a routine method. The actual handling of the data, however, is not complex. If readings are taken at intervals of three or four minutes, for instance, the value of $\frac{\Delta T}{\Delta R}$ may be calculated and plotted (as lines equal in length to ΔT instead of points) against T while the test is in progress. The constant c as explained above is obtained from the intercept on the T axis. The semilogarithmic plot is then made and its slope b calculated. The time for the entire test should not be more than thirty minutes. It should, therefore, serve very well for a control test for pulp being produced on the grinder. The test may also serve as a measure of hydration of pulps in the beater.

TABLE 3

CONSTANTS OF RATE OF FLOW—TIME EQUATION FOR SEVEN TYPES OF GROUNDWOOD PULP

Pulp designation	Species [a]	Constants obtained from curves [b] A	c	b	Calculated values for Bc 1	2
A	White spruce [d]	2000	2.0	0.075	0.091	0.082
B	Jack pine	1000	0.0	0.071	0.062	0.078
C	Aspen	400	3.0	0.034	0.039	0.034
D	Longleaf pine	410	1.0	0.015	0.015	0.016
E	Eastern hemlock	210	1.5	0.014	0.025	0.012
F	Sitka spruce	138	3.0	0.010	0.007	0.009
G	Black gum	120	6.0	0.007	0.006	0.007

[a] These pulps are types of groundwood and are not to be considered as representing the mechanical pulp characteristics of the particular species.
[b] Obtained graphically from rate of flow-time equation $T + c = A10^{bR}$. The value of b is always negative; however, when considering its relation to pulp properties it is most conveniently handled as a positive number.
[c] Column 1 calculated from data taken at 2, 6 and 10 minutes. Column 2 calculated from data taken at 2, 14 and 26 minutes.
[d] Commercial grade.

Method of Calculating the Constant B = —b Without Plotting the Data

The constant b appears to be more closely related to pulp properties than the other two constants. If this factor is the only one desired from the rate of flow data it may be easily calculated by formula (7) below without plotting the data. Since b is always negative, B has been designated equal to —b.

$$B = \frac{(R_1 - R_2) - (R_2 - R_3)}{2.3\,(R_1 - R_2)\,(R_2 - R_3)} = \frac{R_1 + R_3 - 2R_2}{2.3\,(R_1 - R_2)\,(R_2 - R_3)} \qquad (7)$$

Where R_1, R_2 and R_3 are successive readings of flow rate taken at the equal intervals of time T_1, T_2 and T_3, respectively.

This equation is based on the fact that the curve expressed by equation (6), Figure 3, is a straight line whose slope is 2.303b[4]. Since the slope of a linear function is

$$m = \frac{y_1 - y_2}{x_1 - x_2} \qquad (8)$$

We may write from equation (6)

$$2.303\ b = \frac{\left(\frac{dT}{dR}\right)_1 - \left(\frac{dT}{dR}\right)_2}{T_1 - T_2} \qquad (9)$$

Let $\Delta T = T_n - T_m$ where T_m and T_n are successive readings of time, n being larger than m.

Now $\frac{\Delta T}{\Delta R} = \frac{dT}{dR}$ when ΔR approaches zero.

$$T_1 = \left(\frac{T_m + T_n}{2}\right)_1 \text{ (approximately) when } \Delta R \text{ approaches zero.}$$

$$\text{and } T_2 = \left(\frac{T_m + T_n}{2}\right)_2 \text{ (approximately) when } \Delta R \text{ approaches zero.}$$

$$\text{then } 2.303\ b = \frac{\left(\frac{\Delta T}{\Delta R}\right)_1 - \left(\frac{\Delta T}{\Delta R}\right)_2}{\left(\frac{T_m + T_n}{2}\right)_1 - \left(\frac{T_m + T_n}{2}\right)_2} \text{ (approximately) when } \Delta R \text{ approaches zero.} \qquad (10)$$

$$\text{Let } \left(\frac{\Delta T}{\Delta R}\right)_1 = \frac{T_2 - T_1}{R_2 - R_1} \text{ and } \left(\frac{\Delta T}{\Delta R}\right)_2 = \frac{T_3 - T_2}{R_3 - R_2}$$

$$\left(\frac{T_m + T_n}{2}\right)_1 = \frac{T_1 + T_2}{2} \text{ and } \left(\frac{T_m + T_n}{2}\right)_2 = \frac{T_2 + T_3}{2}$$

and substitute in equation (10)
since T_1, T_2, and T_3 are equal intervals of time,

$$(T_2 - T_1) = (T_3 - T_2) = k$$

$$\text{and } \frac{T_1 + T_2}{2} - \frac{T_2 + T_3}{2} = -k$$

Equation 10 then becomes

$$2.303\ b = \frac{\frac{k}{R_2 - R_1} - \frac{k}{R_3 - R_2}}{-k} \qquad (11)$$

which, when simplified, is as expressed in equation (7).

The accuracy of the calculation depends on the accuracy with which the three readings of rate of flow and time establish the straight line of the derived curve. Table 3 shows the calculated values of B for the various ground-wood pulps in Table 1. Column 1 was calculated from data taken at short intervals near the start of the test; namely, 2, 6, and 10 minutes. Column 2 was calculated from the data taken at longer intervals; 2, 14 and 26 minutes. The numerical differences between both sets of calculated values and the original graphically determined values are much greater for those pulps for which the change of rate of flow is low (that is a high value of —b)[5] than for those for which the change of rate of flow is high. The percentage differences, however, are in general greater when the change of rate of flow is high. Values of B calculated from data taken at longer intervals of time (Column 2) approximate the graphically determined values (b) more closely than those calculated from shorter intervals of time. The percentage variation in the results in Column 2 from the graphically determined values of b is about 10 per cent, which is an allowable variation.

If a more accurate value of b is desired the time required to calculate it by the graphical method is only slightly more than for the algebraic method for B. The algebraic method, however, is more easily handled, especially by non-technical workers.

[4] $\log_e 10 = 2.303$.

[5] The constant b is the *reciprocal* of the change in the rate of flow with respect to the logarithm of the time plus the constant c.

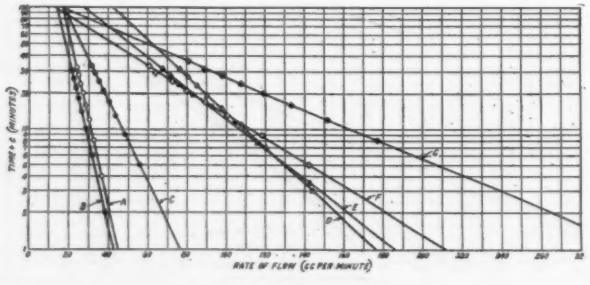

FIG. 4

Variation of Rate of Flow with Time Plus Constant c for Seven Types of Ground Wood Pulp. Semilogarithmic Plot. Curves are Lettered to Correspond to Pulps in Table I.

Future Work

The development of this test method at the Forest Products Laboratory has reached a stage where it is believed that it can be put into practical use. It should be noted, however, that the test has specified certain conditions, such as amount of pulp for a given diameter of mat and a constant head of water and temperature for all determinations. In a sense then the result is limited to the conditions under which it is determined. It is the ultimate desire in pulp testing that the result will be expressed in terms that measure properties of the material independent of the method or apparatus with which the test is made. Further work on the rate of flow test, therefore, is to consist in establishing relations between rate of flow, head of water, and thickness of the pulp mat. This may enable the results to be expressed independently of the conditions of test.

Temperature Effect

Campbell has pointed out that if the tubes are calibrated at a given temperature, the rate of flow obtained for a given pulp will be the same at all other temperatures[3]. This is due to the fact that the viscosity changes affecting flow through the tubes, also affect the flow through the pulp and in exactly the same degree. The capillary tips in the tubes of the rate of flow apparatus described here are very much shorter than those used by Campbell and it is possible this temperature relationship does not hold. Further, the present design of apparatus does not permit determinations on very free pulps, such as unbeater chemical pulps. The apparatus is to be changed to accommodate such pulps.

Flue Heat Reclamation

Flue heat reclamation is unquestionably a matter of outstanding importance in effecting an economical heat balance, for if suitable devices for salvaging heat from the gases of combustion are not employed a good 25 per cent of the heat liberated in the boiler furnace, frequently much more, is sacrificed, much of it literally thrown away. Waste of this magnitude occurs, moreover, even though the boiler unit is a highly efficient steam generator and is reflected, obviously, in unnecessarily high steam costs.

Some of this heavy heat loss is occasioned by radiation, moisture and hydrogen in the fuel, carbon rejection in the ash, excess air supply, etc., and is in large part unavoidable, but the greater proportion, 60 per cent or so, simply goes up the stack. A considerable part of this heat rejected by the boiler can be salvaged, however, and productively employed. Either fuel economizers or air preheaters can be utilized for such purpose, or both of these types of heat reclaimers. With their aid, flue gas temperatures can be brought down from 600 or 700 degrees to 300 degrees Fahrenheit or even lower, cutting stack losses of from 15 to 16 per cent down to 5 or 6 per cent of the total heat generated in the boiler furnace.

Ground Wood Pulp Evaluation*

By Means of Static Bending Screen Analysis And Rate of Flow Tests

By E R. Schafer[1a] and L. A. Carpenter[1b]

Summary

The correlation of the static bending test, the fractionation of pulps by means of screens, and the rate of flow test, three new methods of pulp testing at the Forest Products Laboratory, and their relation to fundamental physical properties of the pulp are discussed.

The necessity of forming pulp boards, for testing in static bending, under controlled conditions is emphasized and a suitable method described. Data are given which show that pressure on the wet cake and during the drying of the pressed board has an important influence on the strength and stiffness of the resulting board.

The fractions obtained by screening pulp on a series of differently meshed screens are found to possess different physical and chemical properties. The value of the screen analysis for obtaining information regarding the length of fibers of which a pulp is composed is pointed out.

The rate of the flow of water through pulp under the conditions described has been found to diminish at a definite rate, which may be expressed by a mathematical equation. One of the constants in this equation appears to be related to the strength of the pulp at the elastic limit and at rupture. Certain considerations are presented which indicate that this constant is a measure of the hydration of the pulp. The relation of the constant to the stresses in the paper or board at the elastic limit allows the strength of the material, attributable to hydration, to be expressed in terms independent of piece dimensions or of other variables.

Introduction

It is recognized in the pulp and paper industry that there is need of better methods for evaluating ground-wood pulp in numerical terms. Such evaluation is necessary for efficient manufacturing control and for determining whether a given product will be satisfactory for a specific use.

The Forests Products Laboratory has recently studied three new methods suitable for ground wood pulp evaluation, namely, the static bending test[2], the fractionation of pulps by means of screens[3], and the rate of flow test[4].

It is the purpose of this paper to show the correlation and application of the three new methods of pulp evaluation and their relation to the fundamental physical properties of ground-wood pulp.

The Static Bending Test

The forming of suitable test sheets composed entirely of ground-wood pulp is difficult and the usual strength determinations made on such sheets are unsatisfactory because of the low sensitivity of available testing devices; moreover, the potential strength of ground-wood pulp is not predicted by such tests with any degree of certainty. However, the static bending test as conducted at the Forest Products Laboratory is sufficiently accurate for the evaluation of fiber boards and may be used in determining the properties of strength in use.[2] The test consists of determining the properties of strength and stiffness of the pulp by subjecting a thick board of the material to uniformly applied loads and the calculating of the moduli of elasticity, transverse strength, and rupture from the data obtained.

FORMING THE PULP BOARD

The necessity of using care in forming the pulp board is as important in the static bending test as it is in the forming of test sheets in the evaluation of chemical pulps. The following procedure has been found to be satisfactory: The pulp, unless already in the slush form, is thoroughly disintegrated by any stirring device that does not cause hydration and 100 grams (oven-dry equivalent) is diluted to a 2 per cent consistence. The mixture is thoroughly stirred and poured into a large sheet mold. The water is drawn off through 60 mesh fourdrinier wire under a vacuum of 15 inches of mercury. The water is removed until the pulp mat contains 90 per cent of water. This moisture content is determined visually from a calibrated glass gauge attached to a vacuum tank.

The pulp cake obtained in this way is 9.5 inches in diameter and from 1 to 1½ inches thick. The fourdrinier wire with the pulp cake on it are taken from the mold and placed in a press. Another piece of 60 mesh fourdrinier wire is placed on top of the cake. The press is a letter press, which has been mounted on a platform beam balance. A brass ring 2 inches wide is placed around the pulp cake in order to confine the pulp while under pressure. Narrow slots at the bottom edge of the brass ring allow the water to escape. A circular block of wood 2 inches thick, is put on top of the pulp cake. The diameter of the block is slightly less than that of the brass ring so that it will slip into the ring and remain in contact with the pulp cake. Pressure is applied slowly by the screw of the letter press until 10 pounds per square inch is indicated by the weights on the beam balance. This pressure is held until the water practically ceases to flow from the pulp, which usually requires about 2 minutes.

The pressed pulp cake, which is about ½ inch in thickness, together with the top and bottom fourdrinier wires is placed in an electrically heated oven. The shelves of the oven are brass plates about 12 inches square and 3/16 inch thick and have ¼ inch perforations. Another perforated brass plate is placed on top of the pulp cake. The purpose of the top plate is to prevent the cake from warping while drying. The minimum pressure that will accomplish this should be used and, once having been determined, should be used for all tests if strictly comparable results are desired. Under certain conditions, however, it is necessary to use higher pressures and cognizance of this must be taken in interpreting the results. For instance, the pressure found suitable for most ground-wood pulps is 0.2 pounds per square inch, whereas in drying boards composed of chemical stock, highly hydrated for glassine, it was found necessary to increase the pressure to 0.6 pounds per square inch.

The oven is baffled so that the heated air passes between the wet boards, entering at the top of the oven and being removed from the bottom by means of a small fan. The drying temperature is 70° C. The dried boards are brought to a moisture equilibrium in an atmosphere of 65 per cent relative humidity and 72° F. Three strips, each 1.5 inches wide, are cut from

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[1a] Assoc. member TAPPI; Associate engineer, Forest Products Laboratory, Madison, Wis.

[1b] Junior chemist, Forest Products Laboratory, Madison, Wis.

[2] This method is described more completely in a paper entitled "The Measurement of the Strength and Stiffness of Fiber Boards by Means of Static Bending," by C. C. Heritage, E. R. Schafer and L. A. Carpenter Paper Trade J. 89, No. 17, 50 (Oct. 24, 1929); Pulp and Paper Mag. Can. 28, 667 (Oct. 31, 1929); Paper Mill and Wood Pulp News 52, No. 44, 10 (Nov. 2, 1929).

[3] Paper Trade J. 90, No. 19,57 (May 8, 1930).

[4] Technical Association Paper 13,1,263 (May, 1930).

each board with a fine-toothed band saw and tested for strength and stiffness by the method described.

THE EFFECT OF THE PRESSURE USED IN FORMING THE BOARD

The effect of pressure on the wet cake, and while drying, is shown in Table 1. The boards were made from the same pulp

TABLE 1

VARIATIONS IN THE DENSITY, STRENGTH, AND STIFFNESS, OF GROUND-WOOD PULP BOARDS CAUSED BY VARIATIONS IN PRESSURE ON THE WET CAKE AND WHILE DRYING.

Board	Dryness before pressing,[1] per cent	Pressure on wet cake, lb./sq. in.	Dryness after pressing,[2] per cent	Pressure on cake while drying,[3] lb./sq. in.	Density of dried boards,[4] lb./cu. in.	Dryness at time of testing[5] per cent	Modulus of: Transverse strength Lb./sq. in.	Modulus of: Elasticity Lb./sq. in.	Modulus of: Rupture Lb./sq. in.
a	14.0	5.0	19.0	0.2	0.0096	90.2	424	69,200	728
b	14.0	7.0	20.8	0.2	0.0099	91.2	455	70,100	756
c	14.0	10.0	22.8	0.2	0.0101	91.0	519	60,800	743
d	14.0	2.0	15.6	0.2	0.0091	89.8	399	54,800	578
A	...	Note 6	...	0.0	0.0090	90.0	463	45,300	668
B	...	Note 6	...	0.2	0.0123	92.0	523	100,900	923
C	...	Note 6	...	0.4	0.0126	92.8	614	100,200	986
D	...	Note 6	...	0.6	0.0123	90.1	496	77,300	886

[1] The amount of pulp used for each board was 100 grams. The dryness before pressing was calculated from the amount of water drawn off in forming.

[2] Calculated from the weight of the wet cake.

[3] The temperature of drying in series a, b, c, d was 67° C; in series A, B, C, D, 70° C.

[4] Calculated on the basis of the weight of the dried board and the volume after humidifying.

[5] Boards were brought to a moisture equilibrium at 65 per cent relative humidity and 72° F.

[6] Pressure not measured. Board pressed to 0.5 inch thickness.

but were formed under different pressures on the wet cake. Boards a, b, c and d are, however, not strictly comparable with boards A B, C and D, which were pressed to a definite thickness of 0.5 inch, without regard to the pressure required. The boards of each series are comparable within themselves.

In the series a, b, c and d an increase in pressure on the wet cake caused an increase in the density of the dried board and, except in one case, in the strength and stiffness moduli. Since boards A, B, C and D were formed with the same amount of pulp, the same consistence, and the same vacuum it may be assumed that pressing to the same thickness required the same pressure. If this is granted it may be concluded that increasing the restraint while drying from 0.0 successively to 0.2 and 0.4 pounds per square inch also caused successive increase in the density and the strength and stiffness moduli. The next increase to 0.6 pounds per square inch, however, caused a decrease not only in the density but also in the strength and stiffness values. Sufficient work has not yet been done to determine the causes of these variations. The phenomena may be similar to those noted in wet presses and in calenders of paper machines where variations in pressure are known to cause variations in the structure of the paper. It is evident that in a standard test procedure these factors must be controlled.

Previous tests[2] showed that of two sets of boards dried at two different temperatures, the higher strength and stiffness values, in general, were obtained from the boards dried at the higher temperature. However, more concordant results were obtained with the lower temperature. The moderate temperature of 70 deg. C. and the use of a force ventilated oven has, for this reason, been selected for the test procedure at the Forest Products Laboratory.

Fractionation of Pulps by Means of Screens

The new Forest Products Laboratory test for evaluating ground-wood pulp by means of screen analysis consists essentially in screening the pulp in a small diaphragm type screen provided with a series of interchangable screen plates. These plates, instead of being slotted as ordinary diaphragh screen plates, are made of perforated brass plates covered with fine meshed wire. The series of screens are 24, 32, 42 and 60 mesh respectively, of the Tyler standard screen scale. The ratio of the width of the screen opening in one screen to that of the next one in this series of meshes is practically as the square root of two is to one. This set of screen plates enables the pulp to be separated into fractions of five different sizes, each with a fairly uniform fiber length.

The results of the screen analysis test in determining some of the properties of spruce groud-wood pulp are given in Table 2. The average fiber length of the pulp expressed in Table 2 was calculated from the amounts of the various fractions and the fiber length of each fraction. The average fiber length of a pulp may also be calculated from the cumulative percentages of the screen analysis. In such event, the value, which is an abstract number, is called the coarseness modulus. The coarseness modulus of the pulp shown in Table 2 is 0.91. It is discussed further in connection with the Rate of Flow Test.

PROPERTIES OF THE VARIOUS FRACTIONS

It may be noted in Table 2 that the density of the boards made from the various fractions increases with decrease in average fiber length. This, of course, is to be expected since the more compact structures are formed from the shorter fibers. However, it is of interest to note that the strength and stiffness of the board increases also with decrease in average fiber length. It is generally known that the state of subdivision of a pulp is not a criterion of its strength and stiffness. In the spruce pulp analysed here, however, it is evident that as the pulp was being ground it was also undergoing a physical

TABLE 2

PROPERTIES OF SPRUCE GROUND-WOOD PULP AND THE VARIOUS FRACTIONS OBTAINED BY DIAPHRAGM SCREENING

Material	Screen analysis: Amount, Per cent	Screen analysis: Average fiber length, mm.	Chemical analysis: Total cellulose Per cent	Chemical analysis: Lignin, Per cent	Properties of the board: Thickness[2] Inches	Density[3] lb./cu. in.	Modulus of: Transverse strength lb./sq. in.	Modulus of: Elasticity, lb./sq. in.	Modulus of: Rupture, lb./sq. in.
Entire pulp	100.0	0.296[4]	...	...	0.265	0.0122	523	101,000	923
Fraction retained on 24 mesh screen	11.4	3.0	67.8	28.0	0.400	0.0073	86	17,800	134
Fraction retained between 24 and 32 mesh screens	5.4	2.1	68.0	28.2	0.350	0.0086	112	21,700	172
Fraction retained between 32 and 42 mesh screens	7.4	1.4	66.0	28.8	0.336	0.0082	110	36,600	206
Fraction retained between 42 and 60 mesh screens	14.8	0.7	65.0	30.6	0.308	0.0114	366	71,400	699
Fraction passing 60 mesh screen	61.0	0.2	66.4	33.7	0.221	0.0158	692	109,000	1241

[1] The amount of pulp used for each board was 100 grams. The boards were dried at 67° C. under a pressure of 0.2 pounds per square inch.

[2] The thickness of the boards after pressing and before drying was approximatey 0.5 inch.

[3] Calculated on the basis of the weight of the dried board and the volume after humidifying in an atmosphere of 65 per cent relative humidity and 72° F.

[4] This value is calculated. The other fiber lengths were determined with the microscope.

change that improved its binding properties. A similar change taking place in the beater on chemical pulp would be called "hydration."

The chemical properties of the fractions are not so different as the physical properties yet certain points are worthy of note. The analysis given in Table 2 shows the total cellulose content to be practically the same in each fraction. The lignin content of the fractions retained on the 24, 32 and 42 mesh screen is also about the same. About 2 per cent more lignin was found in the fraction retained on the 60 mesh screen and nearly 5 per cent more lignin was found in the material passing the 60 mesh screen. This increase in lignin content may partly account for the change in physical properties. It has been suggested that the increased strength and stiffness in the finer fractions is due to a predominence of springwood, which is said to be more easily hydrated than summerwood. The difference in lignin content of the fractions noted here is about in the same proportions that are found in springwood and summerwood. Another suggestion is that the increased lignin con-

tent in the finer fractions is due to the grinding of the middle lamella lignin in the ground-wood process. This lignin passes the coarser screens and is, therefore, found in the finer fractions. The data are insufficient for either suggestion to be considered conclusive but both are, nevertheless, worthy of consideration.

Fig. 1 shows graphically that variations in the average length of the fibers below about 1.5 mm. are associated with much greater variations in the strength and stiffness moduli than the same variations in fiber length above 1.5 mm. The location of the points which represent the entire pulp are worthy of note. In Fig. 2 the relation of density to strength and stiffness within the range of the experiments appears to be linear. Further study of these relationships has not been made. The various boards in this series are not strictly comparable because of the fact that variations in subdivision of the fibers have been accompanied with variations in hydration and chemical properties. Nevertheless the fractionation of pulp and the study of the separate fractions opens a new field in the study of pulp properties and further work should yield interesting results.

Considered from another angle it should be possible to fractionate pulp for the purpose of blending to produce desired properties; or having once determined the proportions necessary to produce desired properties, to so control the processes of manufacture that these are obtained in the finished product.

The Rate of Flow Test

If a mat of pulp is formed on a fine meshed wire from a pulp suspension and water allowed to continue to flow through the pulp under a constant head, the pulp mat will be found to pack down and the rate of flow through the pulp to diminish at a definite rate which may be expressed by a mathematical equation. The constants in this equation are defining charateristics of the pulp and may be used as a means of comparing pulps with each other. This method of evaluation has been called the Forest Products Laboratory Rate of Flow test.[4] The relation of the rate of flow constants to the strength and stiffness moduli and to the screen analysis is of interest.

THE RELATION OF CONSTANTS A AND C TO PULP PROPERTIES

The rate of flow constants and other properties of several ground-wood pulps are given in Table 3 together with the

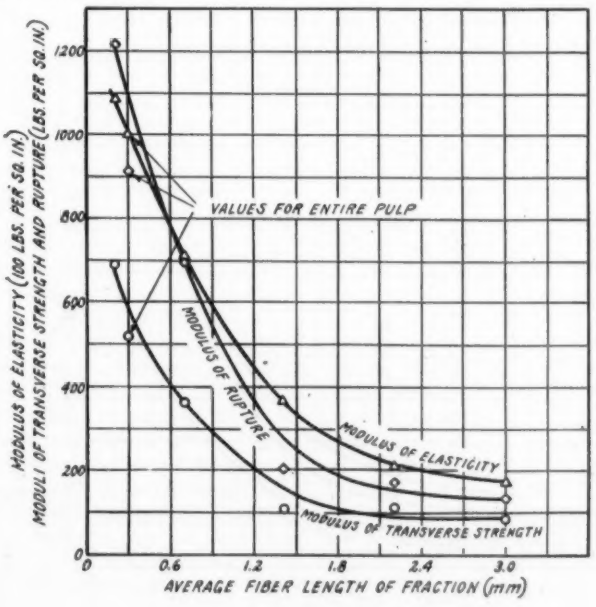


FIG. 1

Relation of Average Fiber Length to Strength and Stiffness of Boards Composed Entirely of the Various Screen Fractions of Commercial Spruce Ground Wood Pulp.

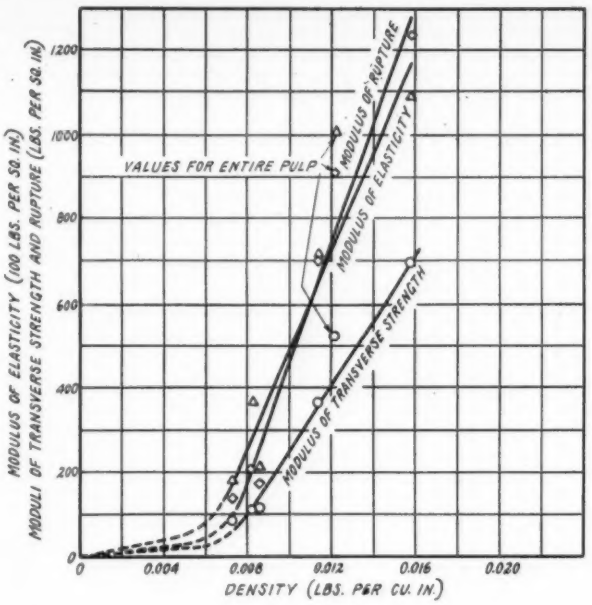


FIG. 2

Relation of Density to the Strength and Stiffness of Boards Composed Entirely of the Various Screen Fractions of Commercial Spruce Ground Wood Pulp.

properties of two chemical pulps. The constant A of the flow rate-time equation

$$T + c = A10^{bR} \qquad (1)$$

represents mathematically the time at which the flow rate would become zero. It may be noted that it decreases with decrease in strength and stiffness moduli. The ordinary methods of plotting the data, however, have not shown it to be related mathematically to these physical properties.

TABLE 3

PROPERTIES OF VARIOUS TYPES OF GROUND-WOOD PULP AND OF SULPHITE CHEMICAL PULP

Pulp designation	Species [1]	Properties of the pulps: Flow rate constants [2] A	b	c	Freeness [3]	Modulus of Coarseness	Properties of the pulp boards [4]: Density, [5]	Modulus of: Transverse strength	Elasticity	Rupture
	Ground-wood pulps				cc.		Lb./cu. in.	Lb./sq. in.	Lb./sq. in.	Lb./sq. in.
A	White spruce [6]	2,000	0.075	2.0	75	0.91	0.0122	523	101,000	923
B	Jack pine...	1,000	0.071	0.0	86	1.83	0.0125	499	81,800	825
C	Aspen	400	0.034	3.0	130	1.09	0.0104	328	55,800	544
D	Longleaf pine	410	0.015	1.0	...	0.26	.....	189	24,400	200
E	Eastern hemlock	210	0.014	1.5	...	0.53	.....	140	32,200	247
F	Sitka spruce.	138	0.010	3.0	...	0.77	.....	161	36,200	312
G	Black gum..	120	0.007	6.0	185	0.42	0.0096	118	27,800	173
	Sulphite Chemical pulps									
H	Glassine stock —unbeaten	350,000	0.061	—1.0	384	2.48	0.0148	494	67,200	868
I	Glassine beaten 130 minutes ..	2 billion	0.210	—0.5	206	1.80	0.0167	1020	115,000	1630

[1] These pulps are types and are not to be considered as representative of the species.

[2] Calculated from the flow rate-time equation $T + c = A10^{bR}$ (b is always negative).

[3] Determined by Greens Slowness tester at 0.4 per cent consistence and 20° C.

[4] Amount of pulp used in each board was 100 grams. The wet cake was pressed under a pressure of 10 pounds per square inch and dried under a restraint of 0.2 pounds per square inch and a temperature of 70° C., except in the case of the chemical pulps. These were pressed wet to a thickness of 0.5 inch and board I was dried under a restraint of 0.4 pounds per square inch. All boards were humidified in an atmosphere of 65 per cent relative humidity and 72° F. before testing.

[5] Calculated on the basis of the weight of the dried board and the volume after humidifying.

[6] Commercial grade.

The constant c also, has not been found to be related to the physical properties of the pulp. Since this value is a correction for time it in all probability merely accounts for certain unsettled conditions existing in the mat at the start of flow.

THE RELATION OF THE CONSTANT b TO THE MODULUS OF TRANSVERSE STRENGTH

The negative constant b, is the reciprocal of the rate of change of the rate of flow with respect to the logarithm of the time plus the constant c. From the data at hand constant b appears to be related to the fiber stresses in pulp boards at the elastic limit and at rupture as expressed in the moduli of transverse strength and rupture, respectively.

In Curve 1 of Fig. 3 the logarithm of b is plotted against the logarithm of the modulus of transverse strength. The curve is linear and may be expressed by the equation

$$TS = ab^n \qquad (2)$$

where TS is the modulus of transverse strength in pounds per square inch, b the rate of flow constant used as a positive number, and a and n constants for all the pulps. The values of a and n for Curve 1, Fig. 3, are 2800 and 0.634 respectively Equation 2 may, therefore, be written,

$$TS = 2800\, b^{0.634} \qquad (3)$$

The value of the constant b is obtained accurately by graphical calculus. A less accurate value, however, is obtained by an algebraic equation which is better adapted to routine tests. The time required for making the test and calculation is about the same for both methods.[4] For convenience in designating the values obtained by the two methods of calculation, B (equivalent to —b) is used in the algebraic formula. This formula is

$$B = \frac{R_1 + R_3 - 2R_2}{2.3\,(R_1 - R_2)\,(R_2 - R_3)} \qquad (4)$$

Where R_1, R_2 and R_3 are successive readings of flow rate taken at equal intervals of time.

Referring again to equation (3) it may be noted that the value of n (that is, the slope of the curve) is approximately 2/3. Let this value of n be substituted in equation (2) and using the experimentally determined values of TS, and the graphically calculated values of b, solve for the values of a for the various pulps given in Table 3. The numerical average of the values of a, thus obtained is 3150. Further, let the calculated value of B by equation (4) be substituted for b in equation (2). We may then write:

$$TS = 3150\, B^{2/3} \qquad (5)$$

$$= 1800 \left[\frac{R_1 + R_3 - 2R_2}{(R_1 - R_2)\,(R_2 - R_3)} \right]^{2/3} \qquad (6)$$

We have then an equation for calculating the approximate value of the modulus of transverse strength of the pulp that is more easily solved than equation (3). It may be readily handled by the use of numerical tables for the 2/3 powers of numbers or by the slide rule. All the data required are three readings of flow rate which can be obtained from slush stock.

The values of B were calculated by formula (4) from rate of flow of readings taken at 2, 14 and 26 minutes for seven of the pulps given in Table 3. The same readings for rate of flow were used in equation (6) for calculating the modulus of transverse strength. These are given in Table 4 and the curve representing the calculated data is shown by Curve 2 of Figure 3. The proximity of the approximate curve to the more accurately determined one shows that equation (6) has a practical application.

The above discussion is intended to demonstrate the method of treating the data. It is not expected that the actual values of the constants will be found to be the same by all who use the method. A given set of constants will hold only for the units employed in the calculations. It is further possible that different constants will be obtained if the procedure and the design of the apparatus is varied.

TABLE 4

VALUES OF B AND MODULUS OF TRANSVERSE STRENGTH CALCULATED FROM THREE READINGS OF FLOW RATE FOR VARIOUS TYPES OF GROUND-WOOD PULP

Pulp designation	Rate of flow at 2 min. (R_1)	Rate of flow at 14 min. (R_2)	Rate of flow at 26 min. (R_3)	B[1]	Modulus of transverse strength[2] Lb./sq. in.
	cc per minute				
A	36.3	28.2	25.0	0.082	593
B	38.2	26.3	22.5	0.078	573
C	55.5	40.2	33.2	0.034	328
D	144.0	98.0	81.0	0.016	200
E	143.0	93.0	72.0	0.012	158
F	142.0	89.0	64.0	0.009	137
G	177.0	119.0	89.0	0.007	115

[1] Calculated by equation (4)
[2] Calculated by equation (6).

These points are to be the subject of further investigation. However, the results indicate that the relationships developed here will hold for any given controlled procedure and the constants, a and n when once determined, will be applicable in all tests.

THE RELATION OF THE CONSTANT B TO HYDRATION

Since the constant b (or its approximate value B) bears a relationship to the modulus of transverse strength it is evident that it may be used as a measure of the particular property of the pulp responsible for this strength. A concept of this property may be obtained from a consideration of the method of calculating the modulus of transverse strength, which is based on the stress at the elastic limit, that is, where the stress-strain curve deviates from a straight line. Up to this point the material has not suffered a permanent deformation and it is therefore reasonable to suppose that only a very small amount of slipping of fibers has occurred. Thus the load necessary to bring the stress to the elastic limit depends almost entirely on the strength of the bonds between the fibers. The property of pulps to which this adhesive character is attributed is most commonly called "hydration." It has been found very difficult to measure the property of hydration entirely independent of other properties.

If the foregoing hypothesis is correct it would seem that this elusive property can be determined directly by the rate of flow test and its effect on the strength of the paper or board expressed through the modulus of transverse strength as a property of the structure and independent of piece dimensions or of other variables.

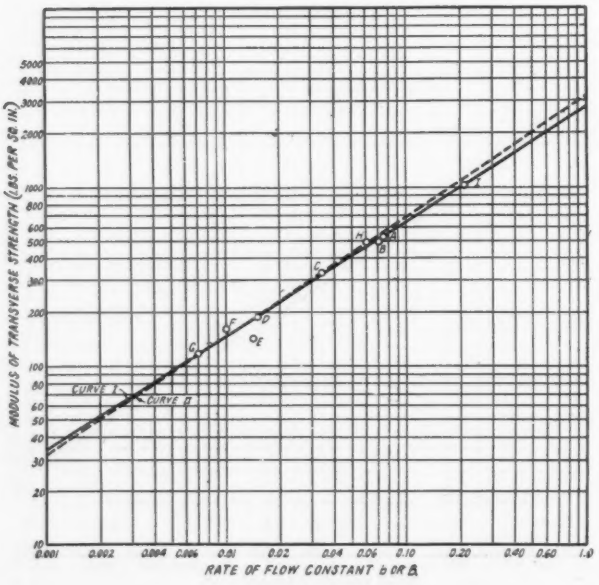


FIG. 3

Relation of Modulus of Transverse Strength to the Constant b of the Rate of Flow-Time Equation for Several Types of Ground Wood and Chemical Pulps. Curve I Represents Equation 3—Curve II Represents Equation 6. Points Lettered to Correspond to Pulps in Table 3

The Relation of the Constant b to the Modulus of Rupture

When the data for the constant b and the modulus of rupture are accorded the same treatment as was made with the modulus of transverse strength the relationships are not so well defined. The reason may be explained from a consideration of the nature of the modulus of rupture. This value is obtained beyond the elastic limit of the bonds between the fibers, at a point where the fibers have slipped past those immediately adjacent and at a point where rupture of the piece is imminent. The modulus of rupture, therefore, may be considered to depend not only on the hydration of the pulp but also on the average fiber length. Expressed mathematically it may be said that modulus of rupture is a function of two variables, hydration and average fiber length.

In order to express this relationship, let the property of hydration be expressed by the value b and the average fiber length by the coarseness modulus. These values may be treated arbitrarily and plotted against the modulus of rupture. Curve 1 of Figure 4 shows the average curve drawn through the points obtained by plotting the logarithm of the product of the constant b and the coarseness modulus against the logarithm of the modulus of rupture. The curve is linear and may be expressed by the equation

$$MR = a(bCM)^n \qquad (7)$$

Where MR = the modulus of rupture in pounds per square inch
b = the constant from the rate of flow-time equation used as a positive number
CM = the coarseness modulus
a and n = constants.

Undoubtedly the two variables b and CM influence the strength at rupture to degrees other than expressed by their proportionate values, and their limiting constants appear as part of the values of a and n. The values of a and n for Curve 1 are 2550 and 0.462, respectively. Although this curve is drawn through nearly as many points as the curve of b against modulus of transverse strength, the points off the line do not lie so closely as those in Figure 3. They lie closely enough, however, to indicate the validity of the foregoing reasoning.

The constant n in the above equation is nearly equal to ½. Let this value be substituted for n. A new average value may be calculated for a, as was done with the modulus of transverse strength, and as before, let the calculated values of B be substituted for b. Equation (7) then becomes

$$MR = 1935 \sqrt{\frac{(R_1 + R_3 - 2R_2)\ CM}{(R_1 - R_2)\ (R_2 - R_3)}} \qquad (8)$$

This form of the equation, like that expressed by equation (6), is also easily solved by the use of numerical tables or the slide rule. The curve of this equation is Curve 2, Fig. 4. The form of equation as expressed in (8) is more of an approximation than equation (6) but it may have a limited use. The study is being continued and more complete data may reveal closer relationships.

The Relation of the Constant b to Freeness

The freeness test is frequently used to control the development of hydration by beating. It is frequently noted that the freeness will decrease along a smooth curve as beating proceeds and the rate of change in the slope of this curve has been proposed as a measure of the rate of development of hydration. Freeness values have also been used as indicating the strength of the pulp caused by hydration. The freeness value, however, has not been related to strength in a precise way. Strength values as obtained on pulp by the usual testing methods generally show, during the progress of beating, an increase to a maximum followed by a sharp decline in strength. The freeness test curve obtained on pulp while in the progress of beating never shows this characteristic.

If the foregoing conception of the nature of the constant b is correct and freeness is also a measure of hydration, some relationship should be found between the two. Some freeness values are given in Table 3 and in Table 5 the freeness values for sulphite pulp at various stages of beating are compared with the rate of flow constants A and b. A fairly smooth curve can be drawn through the plots of the points of the constant b against freeness for the data in Table 5 but no relation appears to exist for the data in Table 3. A consideration of this is to be included in future work. As mentioned previously the constant A does not appear to be related to freeness or any other pulp property.

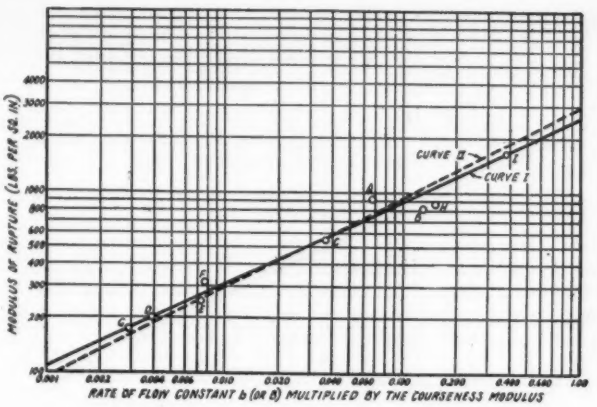


FIG. 4

Relation of the Modulus of Rupture to the Constant b of the Rate of Flow-Time Equation Multiplied by the Coarseness Modulus for Several Types of Ground Wood Pulps and Chemical Pulps. Curve I Represents Equation 7—Curve II Represents Equation 8. Points Lettered to Correspond to Pulps in Table 3.

Relation of Rate of Flow Constants to Modulus of Elasticity

The rate of flow constants in Table 3 may be noted to generally decrease with the modulus of elasticity, but up to the present time relationships that can be expressed by mathematical equations have not been found.

TABLE 5
RATE OF FLOW CONSTANTS A AND b AND THE FREENESS OF SPRUCE SULPHITE PULP AT VARIOUS STAGES OF BEATING

Duration of beating Minutes	Flow rate constants [1] A	b	Freeness [2] cc.
60	70	0.002	460
90	140	0.017	315
120	45	0.024	187
150	1100	0.093	115
180	90000	0.026	47
210	35000	0.556	10
240	18000	0.625	0
300	110	0.384	0

[1] From equation (1).
[2] Determined with the Green slowness tester at 0.4 per cent consistence and 20° C.

Future Work

The trend of future work has been indicated at several points in the foregoing discussion. It is desirable that more information be obtained relative to the effect of apparent density of the pulp mat on the strength and stiffness moduli. It may be possible to relate these variables so as to be able to work with mats of any density and calculate the moduli for any other density. In this connection the work should be correlated with that of the A.P.P.A. and TAPPI research project at the Forest Products Laboratory.

The physical properties of the various screen fractions are to be given more study. Data so far obtained are concerned with only one grade of pulp. The work is to be extended to include other grades so as to arrive at some idea as to the relation of fiber or particle size to other physical properties and also the relation of the properties of the various fractions to those of the composite pulp.

The relations of the rate of flow constants to strength, stiffness, fiber length and hydration should be verified and extended to a wide variety of pulps.

The attainment of these objectives are of immediate practical importance to mills producing mechanical pulp and news print and to other grades of pulp and paper as well, and should lead to the production of superior quality products.

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts and Bibliography of the Technical Association of the Pulp and Paper Industry

Clarence J. West, Chairman

For photostatic copies of articles appearing in the Abstract Section, address the chairman of the Abstracts Committee, Dr. Clarence J. West, National Research Council, 21st and B Streets, Washington, D. C. The charge for this service is 25 cents per page. Copies of United States patents may be obtained from the U. S. Patent Office, Washington, D. C., for 10 cents each. Send currency not stamps.

Drainage for Paper Machine Driers. A. D. Harrison, Eng. pat. 302,116.—In a paper drying machine the steam is distributed throughout the drying cylinder from a rigid jet-pipe, the water resulting from condensation being collected in and siphoned from a basin forming part of a stationary scroll, having a scoop and rigidly supported by brackets from the jet-pipes, through which passes the relieving siphon. The trough may be formed above the shaft.—A.P.-C.

Draw Regulator for the Drying Rolls of Paper Machines. Siemens-Schuckertwerke Aktiengesellschaft. Belg. pat. 353,561. Sept. 30, 1928.—The portion of the draw regulator belonging to the dryer section is synchronized with the individual drives of the dryer rolls by means of an asynchronous machine connected in parallel with the machine driving the parts of the paper machine coming after the dryers.—A.P.-C.

Drive for Paper Machine Dryers. J. M. Voith Maschinenfabrik. Fr. pat. 659,443.—A separate driving motor is provided either for each individual dryer roll or for every pair of rolls. —A. P.-C.

Hydraulic Pressure Calender. Anon. Papeterie 51, 250,253 (March 10, 1929).—A discussion of the advantages and of the hydraulic pressure calender constructed by Joseph Eck and Sohne, Dusseldorf.—A.P.-C.

Plater Effects on Continuous Paper Webs. Stuart W. Webb, John G. Callan and Albert Allen assignors to Eastern Mfg. Co. U. S. pat. 1,674,848, June 26, 1928: Paper Trade J. 88, No. 20, 50-53 (May 16, 1929).—Paper is dried on the paper machine to a low moisture content, such as 4 to 5 per cent, is then supercalendered, the necessary additional moisture is added and the paper is then immediately put through a surface finishing machine such as described in J. Guild's U. S. pat. 1,277,714, of Sept. 3, 1918, in which the paper is passed between two endless fabric belts through the nip of a press having a relatively hard and a relatively soft roll. In this way it is possible to produce a linen finish equal to the best grades of plater lawn and having a similar value. The ply of fabric directly contacting with the paper should be so formed that the individual threads are stiff and hard while the interstices between them are unobstructed. A satisfactory method of adding the moisture content is by the use of a steam box through which the paper is passed immediately before it reaches the nip between the finishing rolls, the amount of steam being so adjusted as to supply a sufficient quantity of moisture so that the weave interference pattern prevails over the plastic surface mark to about the same degree as in high grade plater lawn and that the surface is free enough from deeply marked reticulation to exhibit the gloss to a proper degree. Increase of moisture in the paper as it leaves the paper machine decreases the supercalender pressure permissible or required, decreases pressure required in the linen finish machine for getting pinch mark, and promotes plastic surface mark, so that in paper with excess of such moisture the surface mark catches up with and obscures the pinch or interference mark and reticulates or cuts up the surface and obscures the polish.—A.P.-C.

Multi-Motor Drive for a Fine Paper Machine. Heinrich Kuhn. Papier-Fabr. 27, 17-29 (1929).—Description of equipment which gave very good results on a machine making book and writing papers at speeds of 50 to 400 ft. per min. Curves are given showing the relations of speed to voltage, paper weight and power consumption, also the power requirements for the several parts of the machine when making papers of various weights.—R.H.D.

Paper Having a Glossy Surface of Regenerated Cellulose. Albrecht Schmidt, Gerhard Belle and Kuno Franz, assignors to I. G. Farbenindustrie A. G. U. S. pat. 1,703,961, March 5, 1929.—A film of regenerated cellulose is united with a paper web during manufacture.—A.P.-C.

Treating Paper or Other Material to Permeate it With Synthetic Resin. A. L. Brown assignor to Westinghouse Elec. and Mfg. Co., U. S. pat. 1,695,912, Dec. 18, 1928.—Fibrous material such as paper or asbestos is treated with a catalytic agent such as hexamethylene tetramine and then impregnated with a mixture comprising a condensation product of formaldehyde and cresol or other suitable phenolic substance and a polymerizable oil, e.g., China wood oil, and heated (suitably at a temperature of about 100° C.) in order to form a material which may be rendered insoluble by further heating.—A.P.-C.

Waterproof Paper and Pasteboard. I. G. Farbenindustries Akt.-Ges. Eng. pat. 301,807.—The cellulose derivatives of higher fatty acids are added to and mixed thoroughly with paper pulp at any stage in its manufacture before it reaches the paper machine for the manufacture of waterproof paper or pasteboard or of articles made therefrom. Proportions of 0.5 to 10 or even 50% calculated on the finished product may be added. The cellulose derivatives are caused to coalesce by pressure and heat as by heated calender rolls, the temperature being kept below that at which the cellulose derivative is liquid. Threads or woven fabrics may be incorporated in the paper and patterns may be impressed thereon. The pulp mixture may be treated in press molds, waterproof containers of paper or pasteboard being thus prepared. In an example 100 kilos of cellulose are mixed with 3 kilos of insoluble cellulose dilaurate and the mixture made into paper, the temperature and pressure of the calenders being 110° to 120° C. and 50 atmospheres respectively.—A. P. C.

Hardening and Waterproofing Paper. H. A. Aaronson and Chemical Waterproofing Corp. Eng. pat. 303,935, Oct. 20, 1927.—Paper is impregnated or sprayed with a suitable coal tar pitch dissolved in a non-inflammable solvent such as trichloroethylene or tetrachloroethane, and the solvent is then removed by heating.—A.P.-C.

Paper-Crinkling Machine. W. A. Lorenz assignor to The Otaka Fabric Co. U. S. pat. 1,702,166, Feb. 12, 1929.—Moistened paper is delivered from one roll on to a second roll, rotating at a lower speed and in the opposite direction to the first roll. The sheet is made to adhere to the second roll by means of a suction box external to the roll.—A.P.-C.

Material for Bottie Closures, Etc. H. P. Shopneck assignor to J. J. Daly, U. S. pat. 1,694,399, Dec. 11, 1928.—Long and short fibers such as are suitable for paper making are felted together and impregnated with a thermoplastic stiffener such as a mixture of rosin and montan wax.—A.P.-C.

Section of the

COST DEPARTMENT

of the

American Paper and Pulp Association

Edited by T. J. Burke C. A. Director Cost Dept.

Responsibilities of Management *

Management Has Definite Responsibilities in the Guidance of Business, and It Has Opportunities To Utilize the Accumulated Experience of Others As A Guide

By Fred W. Gage[1]

A rather large subject, forsooth, even when limited, by inference at least, to the financial side of the business—this session being definitely given over to financial management.

I am frank to say that had it been given me to make a choice, I would have found greater pleasure in speaking of problems having to do with the human relations of management. But it always seems that few of us are doing just what we would most like to do in this world, so I will undertake to give you a few more or less rambling thoughts along the lines indicated.

In this connection I am reminded of one who for several years did valiant service in the work of the United Typothetae of America—our departed friend, Jack Wallace. One of his chief delights was to liken the U. T. A. to a light house, and so fervently did he discourse on this theme, that he just naturally became "Light House Wallace" to many organization meetings. Yet even as the finest light house in the world would be of little service o the sailors without the lighted beacon shining out, so the U. T. A. is valuable to the printing industry as its rays of warning light shine out over the more or less stormy business waters over which the craft of the employing printer must be guided.

Classified Wisdom of Experience

We may call these light rays by whatever name seems to best carry the idea, but as a matter of fact, they are largely the sifted, classified wisdom begotten of experience. Some of these light rays will guide in establishing what should be the proper amount of annual turnover for the total amount invested in the business; others will show what should be the proportion of the total receipts properly going into pay roll; others, the relation to various items of the cost of production, which net profits should sustain.

Now there is nothing new in this idea. Going back to those troublous days which preceded the American Revolution, that immortal great American, Patrick Henry, spoke most convincingly of the "lamp of experience," and declared that he knew of no better way of judging of the future than by the past.

Another great American, in more recent times, made a still more specific reference to this matter, and in a way which ties up specifically with our subject. This man was that great merchandiser and philosopher, John Wanamaker, and he said, "Every man starting out in business will have to go over a hard road and find out its turnings for himself. But he need not go over his road in the dark, if he can take with him the light of other men's experience."

Now that is just what the United Typothetae of America has been doing for a number of years—accumulating the light of other men's experience so that these rays may light the way for those coming after. But it is a curious manifestation of the inherent weakness of the average human, that he prefers, apparently, to find out things through suffering and trouble and going wrong, to taking the advice of those who have been through these troubles and would gladly guard others from following.

I believe Kipling put this in about this way, "The pup will not believe the Brown Windsor is bad for him until he has chewed it!" And how many there are of us who will persist in chewing the Brown Windsor! This, too, in spite of the fact that we are not the only sufferers by so doing.

Cannot Afford to Drift Along

However, it may be that even as the constant dropping water will wear away a stone, repeated reiterations of some of the things that have been told many times to printers' meetings, and which I may say here today, will produce some measure of effect. As we know, we are all inclined to mental laziness, and it is always easier to let things drift along as they are, than to think through to better ways. Some one has well said that the American people no longer think, they let the head line writers of the newspapers do it for them. Yet I can not believe that as employing printers we can afford to drift along, especially in these days of increasingly sharp and intelligent competition.

It is no new thing to say that the employing printer must be a man of great versatility, even in those items of craftsmanship with which the earning of his daily bread is directly concerned. So he need not be dismayed to find that in addition to his other accomplishments he must become a financier. This need not of necessity imply that he be a "Napoleon of finance," in this day and age of many millionaires, although I venture that there are mighty few employing printers who have not, at one time or another, performed some Napoleonic stunts to meet the regularly recurring bugaboo of the printer who is operating on insufficient capital—the weekly pay roll!

So reverting to our subject, let us consider as briefly as possible some of the opportunities as well as the responsibilities of management—perhaps considering these two in reverse order. That the printer has definite financial responsibilities goes without saying. If he has only his own money invested in his business, he owes

* United Typothetae of America.
[1] Pres., Gage Printing Co., Battle Creek, Mich.

it to himself to be a wise custodian of those funds. Or if, as more often happens, there are funds belonging to many other people entrusted to his stewardship, there is much more added reason for wise handling.

His responsibility to others in the business, his responsibility as a citizen, as an employer, in training the craftsmen of the future, all these have been well and fully touched on by many writers and speakers. Not always, however, has it been clearly pointed out as to just how these various responsibilities were to be met, many of them entailing a fair degree of money outlay, so perhaps we may well devote most of our time to the consideration of the opportunities.

Ratios

I don't know who first applied the word "Ratios" to what, in a very practical manner, we may consider as merely intelligent comparisons between certain sets of figures. Because it is a word not usually met with in the printing business, a good many have shied away from the study of these comparisons, thinking that such things as "ratios" were too deep or abstruse for the ordinary, or garden variety, of printer minds to grasp. Perhaps, if I were a financial wizard I would deem any other word adequate to correctly convey the idea but as a matter of fact, the employing printer does not need to be a trained accountant to understand the significance of comparisons.

As a matter of fact, we are doing this very thing, all the time. We see competitor A driving the same old Model T Ford which he has had for 'steen years, while B has a fairly new Buick, and C sports a Lincoln. Instinctively we give each his ratio of managerial ability—possibly sometimes wondering how C got the price! In other words, we compare them and the ratio of their earning power.

So in other things, and particularly in the various details of accounting as involved in the running of a printing business, ratios refer to the relations of some things to certain other things—the relation or ratios of various items of expense to sales, of cost to sale, of assets and liabilities, etc.

More and more the old school printers who thought first of turning out a "good job" and afterward whether it was to be sold at a profit or not, have given way to the printers who are in business primarily to make a profit. This does not in itself disparage the craftsmanship of such men, for, as a matter of fact, making money in the printing business makes it possible for the printer to do increasingly good printing.

Let us concede, therefore, that the successful printer is in business to make money by manufacturing his product efficiently and economically, that to do this he must sell it at the right price, and that it is his duty to build up reserves, or a surplus, against possible "lean years" or for future growth.

Hour Cost and Financial Ratios

A study of these comparative figures, which we might as well call "ratios" as anything else, will tell us not only whether in our own organizations we are pursuing the right practices, but also whether we are handling our business affairs as wisely and as successfully as the average of our friends and competitors in the business. The particular ratios which are the most enlightening are: Hour cost ratios, operating ratios, and financial ratios, and these are well and clearly set forth in the book issued by the U. T. A., with the somewhat formidable title, "Ratios for Printing Management." Yet, as we have seen, this is but a book of comparisons, and by a bit of study we can compare our own efforts with those of others, and thus aid in doing efficiently the things we wish to do.

The manufacturing efficiency of our plant is largely determined by the cost of the chargeable hour—the hour we sell to our customers—and the amount of production in that hour.

The reports sent in to Typothetae headquarters each year, properly and carefully combined, enable the setting up of an average, which necessarily varies somewhat from year to year, but becomes in a large measure a standard.

In addition, many of the local Typothetaes maintain their own group compilations which give further light on true averages, and it goes without saying that each successful individual printer will have his own cost records and averages. You will at once conclude that none of these observations can have very much interest to a printer who is not conducting a cost system in his plant. I know there are many who do not, and some of them seem to succeed, at least for a time, but I cannot believe that such a printer is living a comfortable life. It is too much like going barefooted in the dark, where there are known to be a number of tacks spilled on the floor!

Studying our own figures, in comparison with those from the other sources mentioned, it is not only possible but easy to locate any excessive elements, either in fixed expense, current expense or overhead in the hour cost. Thus there is automatically pointed out the corrective measures needed, or at least the warning signal which would stir the management to action.

An Intelligent Check on Production

These same sources give us an intelligent check up on the production of our machines, and there is also available to Typothetae members the Production Records Book, which is another compilation of experiences such as few industries can boast of, and one which is in itself a lighted beacon.

Now there are some men who pride themselves on being intensely practical, and having a fine scorn for what they may term "theoretical figures." No one has a greater admiration for the practical man than have I. Almost always his knowledge has been acquired in the "University of Hard Knocks" and it is unfortunate that the process has given him an aversion to theory, as such. Yet it is safe to say that a combination of the practical and the theoretical, as is easily possible to such a man if he will but lay aside his prejudices and avail himself of the compiled wisdom placed in his hands by his trade organization, would be hard to beat.

To such a man the appeal of "profit" is always keen, yet when losses are met with year after year there comes a feeling of hurt bewilderment where there has been no study of these ratios. The man knows that he has worked hard, and may even be positive that his selling prices have been on a par with those of his more successful competitor. Yet he is unable to put his finger on the weak spot or spots in his administration, unless he has these comparative figures to compare with his own. There may be gross waste in some of his manufacturing, selling or merchandising operations, and these conditions go on for years, unchecked, unless intelligent management comes to realize the possibilities of studying ratios

In a failing printing business there are nearly always five easily recognized business ailments, and of these, insufficient net profit is the first and most common, so the use of the ratios in determining the causes of insufficient profit becomes as important as that of the stethoscope by the physician in determining the cause of heart or lung trouble.

Extravagant Management

Sometimes the trouble is found to be extravagant management, again it is one or more of the four other ailments mentioned—too high receivables (indicating unwise purchasing of materials); over-investment in equipment and other fixed assets (we are all too prone to add more equipment to care for some particular line of work, trusting to luck to keep it profitably employed; and insufficient capital, a very real ailment, because it is constantly aggravated by the other faulty conditions.

A comparison of these ratios from year to year will give the printer a very clear picture of his entire business situation, and warn him of perils ahead, unless he seeks a remedy for unhealthy conditions. Very clearly has this been set forth in an article in

a recent issue of the Typothetae Bulletin, by H. H. Orem, Secretary of the Houston-Galveston Typothetae, from which I quote:

"If it is practical for bankers and credit men to pass upon our ability as business men through the use of financial ratios, shouldn't we ourselves learn our weaknesses and strive to strengthen the weak spots. A chain is only as strong as its weakest link, and so our businesses are largely at the mercy of our weaknesses, if any, in the various phases of management.

"Financial ratios are a practical means of indicating ability in management, of finding the weaknesses of each of us, of helping to build up cash reserves, of pushing collections and tightening of credits, of discouraging unwise buying of equipment and fixed property, in promoting discounting and prompt payment of obligations."

Now let's see just how this applies to present day conditions:

Curtailing Credit

The various paper and machinery houses catering to the printer are more than ever aware of the necessity for curtailing credit. The printer who sets up a plant on "a dollar down and a dollar a week" ultimately becomes a menace to the supply men as well as to his competitors in the printing field.

In equal measure, the printer who can not meet the reasonable credit conditions recently set up by the paper merchants of this territory, becomes a drag on the industry as a whole, and paper dealers, recognizing this fact, are taking steps which will probably largely eliminate this class of business before long.

A study of the ratios in his business will enable the printer to determine whether he is justified in buying new equipment or not. We all recognize over-equipment as one of the very grave problems connected with the industry, and I believe this condition has come about largely because the printer has not made a study of the relation between his current assets and his current liabilities.

In too many instances, the surplus of the printer, instead of being carefully invested outside the business, so as to take care of lean years and periods of unprofitable business are put into additional equipment or buildings, whereas as might be clearly shown by a study of ratios, this is precisely the thing that should not be done.

Accounting Departments, Their Functions*

By Frank L. Sweetser[1]

Before discussing the place of the accounting department in the organization, I should like to emphasize the importance of human relations and the development of individuals to their full capacity. The man who works alone, adds; the man who works with an organization, multiplies. We are gradually learning, but slowly, how much better somebody else can do the thing that we love to do ourselves. There are certain things that I like to do and they are not particularly profitable things to do. But I like to do them and I have to fight it. What we have to do is to find ways to get those things done without doing them ourselves.

Mr. Kettering, who is President of the General Motors Research Corporation, says you can tell how thick a man's skull is by the length of time it takes to get an idea through from the outside. We need open minds. Many of us keep our minds closed. "Things cannot be done." "This or that thing isn't customary." "Our business is different." We must keep our minds open. We may just as well realize things are going to change—they always have changed and this is why they are going to change: The day you were born, everybody in the world was older than you; one year after that day, there were two and a half million people in the United States younger than you were; in ten years that became twenty-five million. If you think all those young fellows are going to do the same things you old fogies have done all your lives, you are much mistaken. You might better line up with the younger organization because this change is going to go on and keep going on.

Production men have a great opportunity for contacting with the accounting departments more than they do, and learning things which they ought to know, providing the human relations are right and first in importance. There are some prime qualities which we all need very much and which we are apt to forget in the day's work. I think one of the most important things is enthusiasm. Nothing in this world is ever accomplished without enthusiasm.

Characteristics Making for Success

We get into the habit of thinking that some concerns are successful, or some men are successful, because they are lucky; the opportunities have just come to some and not to others. That isn't true. Things come to people because they do something. One of the best things to do is to become enthusiastic. Enthusiasm is an excellent help in the solution of any hard problem.

Another characteristic is initiative. The hardest thing in the world to get people to do is to start something without being told. We must recognize that initiative is an important and rare quality.

Courage is another. I recall very distinctly many years ago I was called to a distant city to interview a concern. I was a very young man. I walked up and down in front of the massive buildings, looked things over on the outside, and said: "I have a nerve to be here on this errand." I thought I might better go back to New York. My pride made me go in and have the interview. I found these people weren't so bad, so hard-boiled. Maybe they were kind to me because I was young and didn't know much. I made that day friendships that have lasted through life. I am sure each of us has faced such conditions from time to time. One has to have courage regardless of how hard the position is.

Above all, there is a great quality which if you possess and cultivate it, is tremendously helpful. That is personality. Personality can be developed. If you have these other qualities, add to them personality. After all, it is only the things you can pass on to somebody else that help you on your way.

Organizing for Profit

Perhaps the most important thing I have to say is in regard to organizing a business for profit. We are in business for profits, and we must organize if we expect to get them. Here are the steps that must be taken to organize business properly.

1—Place your responsibilities. They must be so definite that no one in the organization can ask the question about what the responsibility is or whose it is.

2—Build the structure of your operation, your accounting, and everything else around that definite responsibility that you have placed. I do not hesitate to speak about seemingly elementary things because every day you see so many examples of where they are not being carried out.

3—After placing these responsibilities, it is necessary to prepare certain records of manufacturing and selling operations, so

* American Management Association Bulletin.
[1] Gen. Mgr. and Treas., Dutchess Mfg. Co.

that you may record properly what happens under these responsibilities.

4—Having these records, with the proper studies it is possible to set up standards of performance. You can set up standards for practically everything if you have the proper records and definite responsibilities.

5—Next it is possible to compensate any individual in the organization, whether he be a top executive or a line executive or workers, if you prepare the plan properly, so that the incentive to work and to do the things that will create profits will be constantly before the eyes of that individual.

I recommend that as a desirable activity.

The Function of Accounting in Management

The accounting function in business is a tool of management. That is all it is. The purpose of accounting is to control all of the expenditures, to analyze departments and products, and present informative reports to the individuals who should have them. No one in the organization is so important but that he should have the facts.

Presenting the so-called uncontrollable items of departmental expenses is a controversial point. Many people think men should be concerned only with such items as they control. We have in our company a department with 50 or 60 machines, on which we were charging to that department, the various controllable items, and in addition, the usual fixed items and some semi-controlled items-fixed interest, depreciation on investment, floor space, etc. The foreman came to me and said: "In this department are four machines that haven't been used for six months. I am being charged with the use of the machines. Take those machines out, save me the depreciation and I can use the floor space." I think he was right.

Another very important function (and it should be recognized and welcomed by production men) is comparisons. The question of budgets comes creeping in all the time. There is a great misconception of budgets. The important benefits of budgets are the by-products. The most important by-product of budgeting is this: Getting the organization, the whole organization in its various units to think about their problem. This applies the brains of the organization to the problem in advance instead of afterwards. And that includes standard costs and other things of that kind. The prime purpose of all accounting is either to increase or stabilize the profits of the business, and when it doesn't function that way, cut it out. All accounting, no matter how relatively unimportant it may seem, must be part of the whole financial accounting system.

The question has been raised regarding the prevalence of substituting a scheduled inventory for an annual inventory. I do not see how any company can contemplate any industrial activity without running the accounts so they do not have to take a complete inventory at any time. It is perfectly logical. It does require some work and preparation, but it can be done and it is a great benefit to everybody.

Frequency of Reports

There are some reports that you ought to have just as quickly as you can get them. The thing that has killed job cost accounting in industry is the fact that by the time the information used to be ground out through the sausage grinder, it was so old and far away from the fact nobody could remember what happened about it any way. That is why we are using standards. The reports should be simple, and tied up to the production units in some way. Have those that you can use hourly, available if you need them. Do the same with those that you need daily, weekly, and so on up to the final accounting period. Remember that the report is good only as a basis for action. If somebody isn't going to take action on it, don't make it. Take an inventory of all the accounting records being made and find out whether they are being used. If they are not being used, stop them.

Just one word about this final accounting period. We all know that Mr. George Eastman is broadcasting the idea of a thirteen-month year. I perhaps wouldn't be doing my full share if I didn't say something about that. It is proposed that it go into effect in 1933. The entire world will go on to the thirteen-month calendar, so every month will start with Monday morning, 28 days each month, one holiday each month, and the whole thing will be scheduled on a definite basis. What I should like to say is this: Think about it and if you can bring your operations and plans to a basis of accounting that is weekly instead of monthly, go ahead and do it. It looks very much as if this thing were going over. If it does, you will be more nearly ready for it.

Standard Practice Instructions

I believe thoroughly that not only in accounting but in all other jobs in any organization, it pays to write them up. One good way to do it is to develop the standard practice instructions in conference. This not only develops the instructions but it also serves as a very fine training group. Take a little group who know about certain departments, certain activities, and give them the job of setting up standard practice instructions all the way through. Maybe it will be a good idea to have the production men help write up the accountant's job; maybe the accountant can help write up the production man's job. Anyhow, they should all be written up. Perhaps everybody should take a shot at the general manager's job. That would not be a bad idea.

Relation Between Production and Accounting Executives

A word about the human relations between the production and accounting executives. Why it is that there is so much friction between accountants and operating men, I don't know. I think it is wrong human relations, nothing else. Of course, the poor old high-stooled, green shaded, hatchet-faced accountant can't help it. He doesn't get the chance to contact with human nature as production men do. Why not help him if that is what he needs? You have greater opportunities in contacting with these men. I know these accountants are desirous of doing it, but they don't know how; they're not quite human enough; take themselves too seriously. I think it is just as much a responsibility of the production man as it is of the accountant.

The most expensive thing that can happen in any organization is a row. You never get over the results of a real row; a little row doesn't amount to much, but if there are enough of them, it will almost ruin any organization. After all, the accountant's job is nothing but preparing a tool for the use of management. You have to be the salesman and do something with it. If we can introduce the sales department into the production and accounting groups, and have them teach us how they do their stuff, then we shall be all right.

One of the greatest things in the world is toleration. I think production men should inform themselves more about the accounting function. It isn't natural for them to do it. Bad as the accountants are, and poorly as they have been sold, accounting has a definite function. Its purpose and use is more valuable in the hands of production men than anywhere else. After all, you are the boys who spend the money. I think it should be your job to find out all you can about accounting, and have something to do with it.

All the difficulties that there may be, arise largely out of misunderstanding. We don't need to misunderstand each other, but we frequently do. I think accountants should also inform themselves and be a little more practical. Of course they love to go out and talk with the steam department engineer, and tell him how much it costs for coal. That doesn't mean anything; the accountants never heard of B.T.U.'s and they do not know what it means to talk of coal in the units you fellows understand. Don't blame them; teach them.

Who Should Control?

There is growing up in all of our industrial establishments an

agency which hasn't been fully recognized, that of the comptroller. The comptroller's function is definite. As I visualize him, he is a chief executive officer, reporting to the top executive only. His primary function is that of interpretation; he not only has charge of all of the accounts, cost, financial records, whatever they may be, or wherever they may be, which he should have, but he also has the responsibility for interpreting those figures both up and down so that they may be properly used.

Should Say What Records Should Be Kept

The comptroller should say what records should be kept, where they are to be prepared, who shall have access to them, and whether they should be discontinued or revised. A great responsibility rests upon him to handle this job, with co-operation and toleration. The decisions which arise from this data may frequently have to be referred high up. In consultation with the foremen, superintendents and operating men, certainly practically all of the important practical decisions can be made.

Where should the accountant be located? Where should the costs be made? I think it is absolutely impossible to answer those questions in a general way. The question of decentralization of certain data is a matter of common sense. The only way to answer it is to say how it can best be done, and where it should best be done. The final statistical control of the whole situation must be centralized in order to get the proper picture.

Let me summarize: Study human nature—feelings are often more powerful than knowledge. Reactions are almost standard. There are two ways to put over an idea. One is by argument, the other by sugestion. Usually sggestions work better.

Organize for Profit

Organize the business for profit. We want to do two things—increase our earnings and decrease our costs. The best tool for helping to reduce costs is good accounting. The way to handle it is to place responsibility so you can have your accounting head up to certain definite human beings. Keep the proper records; set standards so you can measure all of the accountings; and then arrange your compensation system so that the man who makes good will share in the savings. I am not talking about profit sharing. Tie your costs and all of your activities into your general books. In no other way can you get dependable records that are satisfactory. Friction is lost motion. Keep an open mind. The comptroller, the accounting officer and the accountant in chief, must head up these activities and be responsible for them. He is a line executive; he needs to be something more than an accountant, an engineer as well.

In all these activities remember this: economy is not always efficiency.

Work Starts at Panama City Mill

The accompanying illustration shows the starting of construction on the new Panama City, Florida, kraft paper mill of the Southern Kraft Corporation. The mill will have an initial capacity of 200 tons of kraft paper per day and will be 140 miles east of the Mobile mill.

The Panama City mill will be of concrete, steel, and brick, and will have two paper machines, each 236 inches in width, of the most modern design. Provision is being made so that the capacity of the mill can be readily increased from 200 tons to 400 tons per day. Power required by the mill will be supplied from its own power plant which will be equipped with boilers and will have an electrical installation of 13,400 horsepower.

Adjacent to the mill there has been purchased a tract of woodlands which has sufficient standing timber to assure a perpetual supply of wood.

Russian Pulpwood Shipments Increase

[FROM OUR REGULAR CORRESPONDENT]

DEXTER, N. Y., July 14, 1930—A cargo of pulp wood from Russia was received last week at the plant of the Dexter Sulphite Pulp and Paper Company and it incidentally marked the initial shipment received from that source. The product was cut from the forests at Archangel on the White Sea and is described as one hundred per cent spruce and of much better quality than the Canadian pulpwood. The consignment was brought over in tramp steamers to Canadian territory where it was shipped by train to the local plant. About 3,600 cords made up the shipment and the contract calls for others to follow until 30,000 cords of the pulpwood has been delivered.

It was announced that the bulk of the cargo would be used at the local plant in the manufacture of a high grade of sulphite pulp. About 1,000 cords will be distributed immediately to the Sherman Paper Company with mills at Felt Mills, Great Bend and Lefebvre; Brownville Board Company and National Paper Products Company, of Carthage; Martin Pulp and Paper Company, of Norwood; Oswego Falls Pulp and Paper Company and Lewis, Slocum & Lefevre, of Beaver Falls. All concerns will also participate in the distribution of the shipments to follow immediately.

It was learned that another large cargo of the Russian pulpwood will reach Montreal within a few days for the Racquette River Pulp and Paper Company at Potsdam. During the past year the company received virtually all of its needs from that source and the quality of the product resulted in the signing of further contracts. Several shiploads were imported last year and a large increase is planned this year. The majority of the Northern New York mills in the past have depended principally on the Canadian forests for their supply but the International Paper Company and other concerns have already signed contracts for Russian pulpwood which are expected to result in a considerable decrease in Canadian imports this year.

Swedish Pulp and Paper Exports Lower

WASHINGTON, D. C., July 16, 1930.—Exports of pulp and paper from Sweden during the first four months of the current year were in most instances below those of the corresponding period of last year, exceptions being groundwood, which increased by 25 per cent, and fine papers according to a report to the Department of Commerce.

Exports of kraft pulp (unbleached sulphate) show the heaviest decline, having fallen off by 30 per cent. Shipments of sulphite pulp were only slightly below those of last year, while shipments of news print and boards decreased by 11 per cent, and of kraft wrapping paper by 16 per cent. The decline in exports of sulphite wrappings was somewhat heavier, having amounted to 22 per cent.

STARTING CONSTRUCTION OF PANAMA CITY KRAFT MILL

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING JULY 12, 1930

SUMMARY

Cigarette paper .....412 cs.
Wall paper .....10 bls., 28 cs.
Paper hangings .....8 bls., 13 cs.
News print .....5608 rolls
Tissue paper .....21 cs.
Printing paper .....125 rolls, 54 bls., 134 cs.
Wrapping paper .....128 bls., 3 cs.
Packing paper .....12 bls., 7 cs.
Blue print paper .....1 cs.
Filter paper .....75 bls., 27 cs.
Drawing paper .....47 cs.
Surface coated paper .....31 cs.
Baryta coated paper .....91 cs.
Coated paper .....12 cs.
Cover paper .....4 cs.
Photo paper .....2 cs.
Metal paper .....30 cs.
Decalcomania paper .....43 cs.
Colored paper .....19 bls., 27 cs.
Silk paper .....1 cs.
Tracing paper .....1 cs.
Envelopes .....108 cs.
Note paper .....8 cs.
Caoutchouc paper .....12 cs.
Kraft paper .....52 bls.
Writing paper .....12 cs.
Miscellaneous paper .....170 cs.

CIGARETTE PAPER

Liggett & Myers Tobacco Co., De Grasse, Havre, 44 cs.
De Manduit Paper Corp., Liberty, Havre, 56 cs.
H. H. Strauss, Liberty, Havre, 60 cs.
P. J. Schweitzer, Pr. Adams, Marseilles, 152 cs.
P. Lorillard & Co., Augvald, Marseilles, 100 cs.

WALL PAPER

A. C. Dodman, Jr., Inc., Pr. Harding, Hamburg, 1 cs., 3 bls.
Irving Trust Co., Deutschland, Hamburg, 4 cs.
R. F. Downing & Co., Deutschland, Hamburg, 1 ble.
Globe Shipping Co., Deutschland, Hamburg, 3 bls.
F. J. Emmerich, Britannic, Liverpool, 2 bls.
R. F. Downing & Co., Olympic, Southampton, 5 cs.
Thomas & Pierson, Berengaria, Southampton, 1 cs.
Heemsoth, Basse & Co., Columbus, Bremen, 1 ble.
Guaranty Trust Co., Hamburg, Hamburg, 10 cs.
Bendiz Paper Co., Hamburg, Hamburg, 7 cs.

PAPER HANGINGS

W. H. S. Lloyd & Co., Amer. Banker, London, 4 bls., 3 cs.
W. H. S. Lloyd & Co., De Grasse, Havre, 2 cs.
W. H. S. Lloyd & Co., Ile de France, Havre, 7 cs.
Whiting & Patterson Co., Inc., Olympic, Southampton, 4 bls., 1 cs.

NEWS PRINT

Perkins, Goodwin & Co., Deutschland, Hamburg, 154 rolls.
Johanson, Wales & Sparre, Inc., Korsholm, Sundsvall, 18 rolls.
——, Bergensfjord, Oslo, 264 rolls.
——, Markland, Liverpool, N. S., 4749 rolls.
Perkins, Goodwin & Co., Hamburg, Hamburg, 423 rolls.

TISSUE PAPER

B. F. Drakenfeld & Co., Britannic, Liverpool, 1 cs.
F. C. Strype, Cleveland, Hamburg, 2 cs.
Atlantic F'd'g Co., Kifuku Maru, Hamburg, 18 cs.

PRINTING PAPER

Japan Paper Co., Amer. Banker, London, 1 cs.
E. Dietzgen & Co., N. Amsterdam, Rotterdam, 3 cs.
P. C. Zuhlke, Lapland, Antwerp, 38 cs.
Keuffel & Esser Co., Pr. Harding, Hamburg, 77 rolls.
Baldwin Paper Co., Stuttgart, Bremen, 42 cs.
E. Dietzgen & Co., Deutschland, Hamburg, 12 cs.
Steffens, Jones Co., H. Jaspar, Antwerp, 33 cs.
Japan Paper Co., Berengaria, Southampton, 5 cs.
——, Hamburg, Hamburg, 87 rolls, 54 bls.

WRAPPING PAPER

Sylvania Industrial Corp., Lapland, Antwerp, 3 cs.
R. McBratney & Co., Inc., Britannic, Liverpool, 3 bls.
J. P. Heffernan Paper Co., Exiria, Genoa, 125 bls.

PACKING PAPER

F. C. Strype, N. Amsterdam, Rotterdam, 7 cs.
Henschel, Naeve Co., G. Washington, Hamburg, 12 bls.

BLUE PRINT PAPER

J. Henschel & Co., Deutschland, Hamburg, 1 cs.

FILTER PAPER

H. Reeve Angel & Co., Inc., Tuscania, London, 14 cs.
H. Reeve Angel & Co., Inc., Olympic, Southampton, 75 bls., 12 cs.
Eimer & Amend, Berengaria, Southampton, 1 cs.

DRAWING PAPER

Keuffel & Esser Co., Pr. Harding, Hamburg, 33 cs.
——, Stuttgart, Bremen, 12 cs.
J. Henschel & Co., Deutschland, Hamburg, 2 cs.

SURFACE COATED PAPER

Gevaert Co. of America, Lapland, Antwerp, 31 cs.

BARYTA COATED PAPER

J. H. Schroeder Banking Corp., Stuttgart, Bremen, 79 cs.
Globe Shipping Co., Stuttgart, Bremen, 12 cs.

COATED PAPER

Pacific National Bank, Hamburg, Hamburg, 12 cs.

COVER PAPER

International F'd'g Co., Hamburg, Hamburg, 4 cs.

PHOTO PAPER

Davies, Turner & Co., Deutschland, Hamburg, 2 cs.

METAL PAPER

Hensel, Bruckman & Lorbacher, Stuttgart, Bremen, 30 cs.

DECALCOMANIA PAPER

C. W. Sellers, Pr. Harding, Hamburg, 15 cs.
C. W. Sellers, Deutschland, Hamburg, 5 cs.
C. W. Sellers, G. Washington, Hamburg, 4 cs.
C. W. Sellers, Hamburg, Hamburg, 4 cs.
B. F. Drakenfeld & Co., Britannic, Liverpool, 15 cs. (duplex).

COLORED PAPER

F. L. Kramer & Co., Stuttgart, Bremen, 10 cs.
Quality Art Novelty Co., Stuttgart, Bremen, 17 bls.
——, Stuttgart, Bremen, 2 bls.
S. Gilbert, G. Washington, Hamburg, 5 cs.
S. Gilbert, Columbus, Bremen, 4 cs.
F. L. Kramer & Co., Columbus, Bremen, 8 cs.

SILK PAPER

Whiting & Patterson Co., Inc., N. Amsterdam, Rotterdam, 1 cs.

TRACING PAPER

Keuffel & Esser Co., Pr. Harding, Hamburg, 1 cs.

ENVELOPES

J. Beckhard, Stuttgart, Bremen, 108 cs.

NOTE PAPER

J. Beckhard, Stuttgart, Bremen, 8 cs.

CAOUTCHOUC PAPER

American Express Co., Deutschland, Hamburg, 12 cs.

KRAFT PAPER

——, Bergensfjord, Oslo, 52 bls.

WRITING PAPER

Globe Shipping Co., Ile de France, Havre, 12 cs.

MISCELLANEOUS PAPER

Japan Paper Co., De Grasse, Havre, 2 cs.
Bloomingdale Bros., Deutschland, Hamburg, 6 cs.
W. A. Foster & Co., Olympic, Southampton, 3 cs.
Globe Shipping Co., Olympic, Southampton, 2 cs.
Keller, Dorian Paper Co., Ile de France, Havre, 24 cs.
W. H. S. Lloyd & Co., Ile de France, Havre, 2 cs.
P. J. Schweitzer, Ile de France, Havre, 3 cs.
American Express Co., Ile de France, Havre, 100 cs.
Guibout Freres, Ile de France, Havre, 8 cs.
Wilkinson Bros. & Co., Inc., Pr. Adams, Genoa, 13 cs.
Dupont Viscoloid Co., Pr. Adams, Genoa, 1 cs.
——, Pr. Adams, Genoa, 6 cs.

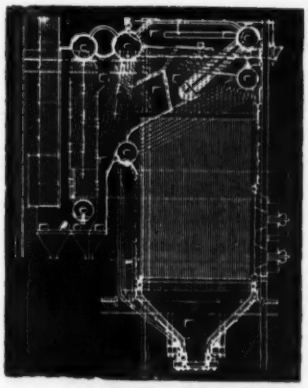
RAGS, BAGGINGS, ETC.

J. Cohen & Son, Tuscania, London, 24 bls. rags.
Banco Com'l Italiane Trust Co., N. Amsterdam, Rotterdam, 25 bls. rags.
F. Stern, Pr. Harding, Hamburg, 301 bls. rags.
A. W. Fenton, Stuttgart, Bremen, 56 bls. rags.
Bank of New York, Stuttgart, Bremen, 141 bls. bagging.
——, Deutschland, Hamburg, 29 bls. rags.
Brown Bros. & Co., Cameronia, Glasgow, 66 bls. paper stock.
T. D. Downing & Co., Cameronia, Glasgow, 88 bls. paper stock.
Baring Bros. & Co., Cameronia, Glasgow, 65 bls. paper stock.
E. Butterworth & Co., Inc., Hohenstein, Antwerp, 72 bls. flax waste.
1st National Bank of Boston, Hohenstein, Antwerp, 81 bls. flax waste.
Guaranty Trust Co., Hohenstein, Antwerp, 140 bls. rags.
Amtorg Trading Corp., Bonnie Brook, Odessa, 5677 bls. rags.
Castle & Overton, Inc., Sud Americano, B. Ayres, 103 bls. bagging.
E. J. Keller Co., Inc., Liberty, ——, 114 bls. flax waste.
Irving Trust Co., Liberty, Dunkirk, 94 bls. paper stock.
D. M. Hicks, Inc., Liberty, Dunkirk, 25 bls. flax pulp.
J. Cohen & Son, Liberty, Havre, 70 bls. rags.
International F'd'g Co., H. Jaspar, Antwerp, 53 bls. rags.
G. Schuster, Siboney, Havana, 5 bls. rags.
Banco Com'l Italiane Trust Co., Evanger, Savona, 163 bls. bagging.
Darmstadt, Scott & Courtney, Isarco, Genoa, 121 bls. bagging.
——, River Hudson, Alexandria, 67 bls. rags.
E. J. Keller Co., Inc., City of Alton, ——, 12 bls. rags.
——, City of Alton, Rotterdam, 60 bls. rags.
Banco Com'l Italiane Trust Co., Eciria, Genoa, 156 bls. bagging.
American Woolstock Corp., Eciria, Genoa, 32 bls. rags.

OLD ROPE

W. Steck & Co., Pr. Harding, Hamburg, 40 coils.
W. Steck & Co., Pr. Harding, Bremen, 31 coils.

(Continued on page 74)



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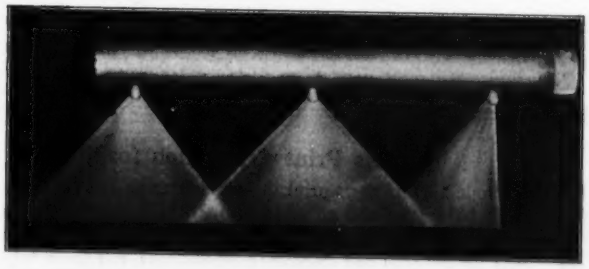
installed in some of the largest pulp and paper mills in the United States and Canada

MAXIMUM STEAM
AT
HIGHEST EFFICIENCY
WITH
LEAST CAPITAL INVESTMENT and OPERATING COSTS

Result:—Enormous savings in cost of pulp and paper produced.

BADENHAUSEN CORPORATION
General Offices and Works
CORNWELLS HEIGHTS (PHILA.), PA.



THE DeZURIK SHOWER
FOR FRESH OR WHITE WATER

Here are three features you need in showers. Make sure you have them or you are wasting money » » » » » » » »

LOWEST WATER DISCHARGE . . . . .

THE PATENTED FEATURES OF THIS SHOWER ENABLE IT TO WASH MOST EFFICIENTLY WITH THE LEAST WATER. LESS WATER DISCHARGED MEANS: LESS TO FILTER—LESS TO TREAT—LESS SAVE-ALL LOAD—AND LESS FIBRE LOSS.

STRONGEST WASHING FORCE .

THE SPRAY IS DIRECT AND VERY INTENSE—THAT'S WHY LITTLE WATER IS USED AND YET WIRES AND FELTS ARE KEPT SPOTLESSLY CLEAN.

NON-CLOGGING ON WHITE WATER

USE ANY CONSISTENCY WHITE WATER THROUGH DEZURIK SHOWERS WITHOUT CLOGGING. THEY ARE MADE FOR IT—EITHER FILTERED OR UNFILTERED..

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DeZURIK SHOWER COMPANY » Sartell, Minnesota

Union Screen Plate Company

Fitchburg, Mass., U. S. A. Lennoxville, P. Q., Canada

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SCREEN PLATES FOR FLAT SCREENS
6 SLOTS—5 SLOTS—4½ SLOTS—4 SLOTS—PER INCH

Old Plates Reclosed and Re-cut to Accurate Gauge
Rolled Phosphor Bronze and Copper Plates for Rotary Screens

Sole Manufacturers of the Union Witham Screen Plate Vat and Fastener

Imports of Paper and Paper Stock

(Continued from page 72)

W. Steck & Co., Liberty, Havre, 40 rolls.
Brown Bros. & Co., Liberty, Havre, 102 rolls.
W. Steck & Co., City of Alton, Rotterdam, 16 bls.

WOOD PULP

Bulkley, Dunton & Co., Consul Corfitzon, ——, 13855 bls. wood pulp, 2665 tons.
Pagel, Horton & Co., Inc., Consul Corfitzon, Gefle, 1250 bls. wood pulp, 127 tons.
——, Consul Corfitzon, Hernosand, 3900 bls. sulphite, 650 tons.
J. Andersen & Co., Consul Corfitzon, Hernosand, 300 bls. sulphite, 50 tons.
——, Consul Corfitzon, Hernosand, 2550 bls. sulphate, 425 tons.
M. Gottesman & Co., Inc., Consul Corfitzon, Iggesund, 825 bls. sulphate, 165 tons; 1500 bls. sulphite, 300 tons.
Castle & Overton, Inc., Deutschland, Hamburg, 2404 bls. wood pulp, 360 tons.
National City Bank, Cleveland, Hamburg, 128 bls. sulphite, 25 tons.
Stora Kopperberg Corp., Korsholm, Skutskar, 2075 bls. wood pulp.
Bank of New York, Bergensfjord, Halden. 150 bls. sulphite.
Amtorg Trading Corp., Caithness, Archangel, 3425 cords wood pulp.
——, Aare, St. Albans, 1428 cords wood pulp.
——, Hamburg, Hamburg, 134 bls. sulphite, 27 tons.
Castle & Overton, Inc., Hamburg, Hamburg, 374 bls. wood pulp, 56 tons.
National City Bank, Hamburg, Hamburg, 403 bls. sulphite, 81 tons.

WOOD FLOUR

——, N. Amsterdam, Rotterdam, 100 bags.
B. L. Soberski, Larviksfjord, Frederickstad, 3000 bags.
State Chemical Co., City of Alton, Rotterdam, 555 bags, 32730 kilos.

PHILADELPHIA IMPORTS

WEEK ENDING JULY 12, 1930

Amtorg Trading Corp., Bonnie Brook, Odessa, 5395 bls. rags.
Nat'l Vulcanized Fibre Co., Liberty, Dunkirk, 68 bls. rags.
J. A. Steer & Co., Liberty, Dunkirk, 37 bls. rags.
Philadelphia National Bank, Liberty, Dunkirk, 400 bls. rags.
Katzenstein & Keene, Inc., Liberty, Dunkirk, 101 bls. rags.
W. Heisley, Liberty, Dunkik, 54 bls. rags.
Union Waste Co., Liberty, Dunkirk, 58 bls. rags.
D. I. Murphy, Liberty, Dunkirk, 103 bls. rags.
Katzenstein & Keene, Inc., Liberty, Havre, 285 bls. rags.
D. I. Murphy, Liberty, Havre, 74 bls. rags.
Philadelphia National Bank, Liberty, Havre, 234 bls. rags.
National Vulcanized Fibre Co., Liberty, Havre, 88 bls. rags.
E. J. Keller Co., Inc., Liberty, ——, 97 bls. rags.
——, River Hudson, Alexandria, 87 bls. rags.

BOSTON IMPORTS

WEEK ENDING JULY 12, 1930

Oxford University Press, Scythia, Liverpool, 15 cs. printing paper.
G. F. Malcolm & Co., Scythia, Liverpool, 88 cs. tissue paper.

PORTLAND IMPORTS

WEEK ENDING JULY 12, 1930

Equitable Trust Co., Larviksfjord, Oslo, 510 bls. wood pulp.
The Borregaard Co., Inc., Larviksfjord, Sarpsborg, 2016 bls. sulphate.
Waterfalls Papermills Co., Larviksfjord, Sarpsborg, 3000 bls. sulphite.

International Hydro-Electric Output

The International Hydro-Electric System, a division of International Paper and Power Company, produced 347,085,000 kilowatt hours of electric energy in May, an increase of 11 per cent over the output of the present plants of the System in May, 1929, and 53 per cent over their output in May, 1928.

The output of the System in the first five months of this year was 1,704,447,000 kilowatt hours, 10 per cent greater than in the first five months of last year, and 52 per cent greater than the output of the present plants of the System in the first five months of 1928. In the twelve months ended May 31, the output of International Hydro-Electric System was 4,001,420,000 kilowatt hours, 19 per cent greater than the output of the same plants in the twelve months ended May 31, 1929. This is the first time that the output of the System in a twelve months period has exceeded four billion kilowatt hours.

The combined output of electric energy of all central station power plants in the United States and Canada in the first four months of this year—the latest figures available—increased 3 per cent over their output in the first four months of last year, while the output of the present plants of International Hydro-Electric System increased 10 per cent in the same period.

Builders of Tolhurst Centrifugals Independent

With the merger of the General Laundry Machinery Company and the American Laundry Machinery Company, the Tolhurst Machine Works, Inc., which has been associated with the General Laundry Machinery Company, becomes an independent corporation.

The Tolhurst Machine Works, Inc., is prominently identified with the paper industry through its engineering development in connection with centrifugal separation for the making of cleaner paper. Its position in the industry remains unchanged except in so far as the move greatly enhances the engineering and production resources of the Tolhurst Machine Works, Inc.

Hungerford & Terry in the South

W. A. Kennedy & Co., 1100 Johnston Building, Charlotte, N. C., are now southern sales representatives for Hungerford & Terry, Inc., and the Inversand Company, Clayton, N. J., engineers, designers and manufacturers of water purification plants, water softening zeolites and base-exchange silicates.

News Print Production for June

Production of news print in Canada during June, 1930, amounted to 213,634 tons and shipments to 212,670 tons, according to the News Print Service Bureau. Production in the United States was 108,398 tons and shipments 106,883 tons, making a total United States and Canadian news print production of 322,032 tons and shipments of 319,553 tons. During June, 23,891 tons of news print were made in Newfoundland and 683 tons in Mexico, so that the total North American production for the month amounted to 346,606 tons.

The Canadian mills produced 27,400 tons less in the first six months of 1930 than in the first six months of 1929, which was a decrease of 2 per cent. The United States output was 11,471 tons or 2 per cent less than for the first six months of 1929. Production in Newfoundland was 17,224 tons or 14 per cent more in the first six months of 1930 than in 1929, and in Mexico 1,265 tons less, making a total decrease of 22,913 tons.

During June the Canadian mills operated at 73.0 per cent of rated capacity, United States mills at 79.9 per cent and Newfoundland mills at 103.8 per cent. Stock of news print paper at Canadian mills totaled 45,229 tons at the end of June and at United States mills 29,507 tons, making a combined total of 74,736 tons which was equivalent to 4.4 days' average production.

Changes at Brown-Bridge Mills

TROY, Ohio, July 14, 1930.—Frank Mayo, one of the pioneers in the gumming industry has resigned his position as superintendent of The Brown-Bridge Mills, Inc., of Troy, Ohio. U. S. Tremblay formerly of the Nashua Gummed & Coated Paper Company, is his successor. Mr. Tremblay has had wide experience in the manufacture of all types of gummed paper and cloth. A number of improvements in equipment and methods are anticipated.

John A. Shartle has been made plant manager and will have complete charge of all the processes of manufacture.

T. Linsey Crossley at Toronto

T. Linsey Crossley is now making his headquarters in the laboratory of the Don Valley Paper Company, Toronto. While retaining his interest in the Industrial Laboratories, Limited, he will devote his time entirely to consultation and and testing in the technology of pulp and paper.

NO LEAKS — NO STREAKS

with the

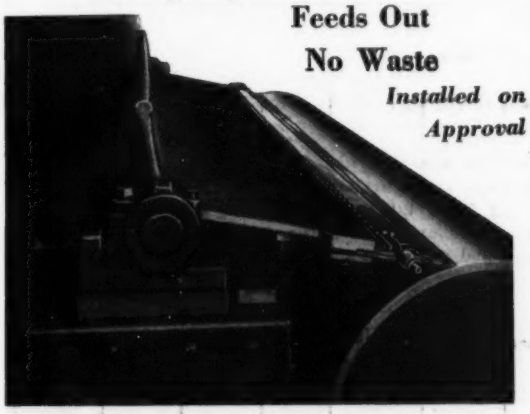
New Lodding Press Doctor

Self Aligning Flexible Blade

Feeds Out

No Waste

Installed on Approval



EACH BLADE GUARANTEED TO FIT—AND GIVE AT LEAST 6 MONTHS SERVICE

LODDING ENGINEERING CO.
WORCESTER, MASS.

Certified Report of Mill shows furnish saving of $4860.00

The experience of many mills has shown that more paper per beater is obtained when silicate is used. The certified survey referred to indicates that an additional 30 lbs. of paper are produced per beater by the use of silicate of soda.

You may have the details in regard to quantities and grade of silicate used without obligation. Please refer to PQ-57-JZ.

Philadelphia Quartz Company
121 S. Third St., Philadelphia
Chicago Sales Office: 205 W. Wacker Drive

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"EXCELSIOR" FELTS

for every grade of

PULP AND PAPER

We continue to maintain at the top the quality of Excelsior Felts, as we have done since we, as pioneers, made the first endless paper machine felts manufactured in America.

Seamless felts for fast running.
Satin Style felts for finish.
Special felts to meet every condition.
Send us your felt problems.

KNOX WOOLEN COMPANY
CAMDEN, MAINE

SOLD BY

BULKLEY, DUNTON & COMPANY
75-77 Duane St., N. Y., and direct

LINDSAY SPIRAL WEAVE FOURDRINIER WIRES

prevent grooving of Seams on machines not equipped with oscillating Suction Boxes. This lengthens the life of wires and increases their production.

THE LINDSAY WIRE WEAVING CO.

14025 Aspinwall Ave.
CLEVELAND, OHIO

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, July 16, 1930.

Seasonal conditions prevailed in the local paper market during the past week. Demand for the various standard grades of paper was light. However, inquiries for future needs have been fairly numerous and the outlook for more lively trading in the autumn is quite bright. Incidentally, the sentiment of the sales forces of the leading paper houses is cheerful. Prices remain unchanged, in most instances.

News print operations have been curtailed somewhat, as usual at this time of the year. The total North American production during June amounted to 346,606 tons, according to information gathered by the News Print Service Bureau. Stocks at the mills at the end of June totalled 74,736 tons, which was equivalent to 4.4 days' average production.

The paper board market continues practically unchanged. Demand for box board is restricted somewhat and the price situation remains unsatisfactory. Despite the midsummer lull the fine paper market is fairly busy, with prices generally steady and unchanged. Some improvement was noticed in the coarse paper market and wrapping paper is going forward in good volume.

Mechanical Pulp

Steadiness prevails in the ground wood market, although the prevailing request for both domestic and imported mechanical pulp is light. Offerings are about sufficient to take care of current requirements. Prices are generally holding to previously quoted levels and there is little talk of concessions around.

Chemical Pulp

The local chemical pulp market was decidedly quiet during the past week. There was a certain amount of activity in Swedish kraft pulp, manufacturers evidently being attracted by the prevailing low prices. Other grades of both imported and domestic chemical pulp are fairly steady and prices generally remain unchanged.

Old Rope and Bagging

Most of the business transacted in the old rope market during the past week was along routine lines. Both foreign and domestic old manila rope were in moderate request. Shipments of small mixed rope were fairly heavy. There were no radical price changes reported. The bagging market was irregular. Scrap and gunny were moderately active but roofing bagging remained dull

Rags

Paper mill interest in the domestic rag market was fairly satisfactory. Supplies of cotton cuttings are moving in seasonal volume. Roofing rags and mixed rags are rather quiet. Quotations on domestic rags are practically unchanged. The imported rag market remains inactive and dealers abroad are still asking high prices for the various foreign grades.

Waste Paper

Although the paper stock market continues dull, inquiries are being received for future needs and prospects for more active trading in the near future are encouraging. The higher grades continue to exhibit a stronger undertone than the lower grades. Soft and hard white shavings are in a strong position with current offerings limited. Prices are fairly steady.

Twine

The twine market is exhibiting a fairly steady trend. Shipments are going forward in normal volume for the time of year. Inquiries for future needs are fairly numerous. Prices on the various grades of twine are generally holding to formerly quoted levels and reports of shading are infrequent.

Zeloid Products Corp. To Expand

The Zeloid Products Corporation, of Holyoke, Mass., has awarded a $10,000,000 financing contract to Austen P. Fox & Co., Inc.

The Zeloid company manufacture a high grade and unusually perfect transparent paper for wrapping and other purposes and is known as Zeloid. This product is made by newly patented machinery and viscose processes from wood pulp, under several patents already allowed or issued, and under others still pending, all of them being the inventions of Dr. Charles Hetzel, president of the Zeloid company, noted German-American chemist and engineer whose wide experience in the cellulose industry came to him from generations before him in Germany.

The Zeloid company contracted for this $10,000,000 in financing for the purpose of equipping several plants for the manufacture of its Zeloid in order to cope with the demand for its products and will only be the beginning of plans for much larger operations.

The bankers are not as yet determined whether it will offer these securities to the public or dispose of them privately.

Maurice Hoopes Made Bank President

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., July 14, 1930.—The selection of Maurice Hoopes, president of Finch, Pruyn & Co., to the presidency of the National Bank in this city has just been announced. He succeeds A. W. Sherman, who died recently. He has been a director for a number of years and has always taken a prominent part in its affairs. In addition to his duties with the paper company he is also a director of the Glens Falls Insurance Company and the New York Power and Light Corporation. Only recently he was named a member of the State Economic Council to aid in making a survey of industrial conditions in this state.

Prior to coming here he served as superintendent of the Edison Electric Illuminating Company at West Chester, Pa., and later as electrical engineer with the Lynn & Boston Railroad. He was elected vice president of Finch, Pruyn & Co. in 1904 and served in that capacity until 1908, when he assumed the presidency, a position he has filled since.

Wants Duty on Pulp Board Reduced

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 16, 1930.—Application has been made to the United States Tariff Commission by an American manufacturer for a reduction in the duty on pulpboard in rolls. The duty under the Tariff Act of 1922 was 5 per cent and the present duty is 10 per cent. The investigation on this application has not yet been ordered by the Commission.

Cotton and Paper Rolls
Super Calenders
Friction Calenders
Embossing Calenders
Hydraulic Presses and Pumps

Successors to the Granger Foundry & Machine Co.

The Textile-Finishing Machinery Company
PROVIDENCE, R. I.

WOOD PULPS
All Grades

CHICAGO OFFICE:
1460 Conway Building,
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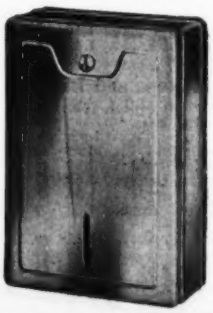
Acer, McLernon & Company Limited
CANADA CEMENT BUILDING
MONTREAL, P. Q.



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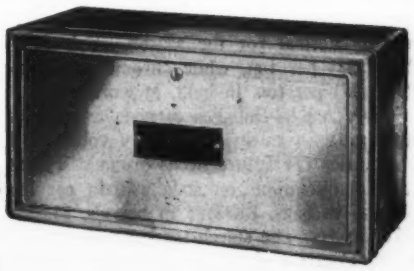
AND
Fixtures
ARE
The STANDARD of the PAPER TRADE
For Towels, Toilet, Napkins, Etc.



GRIFFITH-HOPE CO., West Allis, Wisc.

3 FEATURES of our "TOP FELTS for BOARD MACHINES"

A Trial Felt for Your Machines Will Prove These Facts.

THE WATERBURY FELT CO., SKANEATELES FALLS, N.Y.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, July 16, 1930.

BLANC FIXE.—The position of the blanc fixe market is practically unchanged. Contract shipments are moving in fair volume. The pulp is still quoted at from $42.50 to $45.00 per ton, in bulk, while the powder is selling at from 3¾ cents to 4½ cents per pound, in barrels, at works.

BLEACHING POWDER.—Conditions in the bleaching powder market were fairly satisfactory during the past week. The contract movement was mostly seasonal. Prices generally remained unchanged. Bleaching powder is quoted at from $2.00 to $2.35 per 100 pounds, in drums, at works.

CASEIN.—The casein market was rather quiet. Prices remained unchanged. Domestic standard ground is quoted at 13½ cents and finely ground at 15 cents per pound. Argentine standard ground is selling at 13½ cents and finely ground at 14½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Demand for caustic soda was persistent. Supplies are moving into consumption in good volume for the time of year. Solid caustic soda is quoted at from $2.90 to $2.95, while the flake and the ground are selling at from $3.30 to $3.35 per 100 pounds, all in bags, car lot quantities.

CHINA CLAY.—Steadiness prevails in the china clay market. The contract movement is normal. Prices are holding to formerly quoted levels. Imported china clay is offered at from $15 to $25 per ton, ship side, while domestic paper making clay is selling at from $8 to $13 per ton, at mine.

CHLORINE.—The chlorine market was steadier than of late. Shipments against contract were slightly heavier. No further price changes were recorded. Chlorine is quoted at from $2.40 to $2.45 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—Further weaknesses developed in the rosin market. The grades of gum rosin used in the paper mills are offered at from $5.90 to $5.95 per 280 pounds, in barrels, at yard. Wood rosin is selling at from $5.00 to $5.10 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—The salt cake market continues to exhibit a steady trend. Demand is fairly presistent and the contract movement is normal for the season. Salt cake is quoted at from $22 to $25 per ton, while chrome salt cake is selling at from $20 to $21 per ton, in bulk, at works.

SODA ASH.—Supplies of soda ash are going forward to the paper mills in fairly satisfactory volume. There are a number of inquiries for future needs around. Prices remain unchanged. Contract quotations on soda ash, in car lots, at works, are as follows: in bags, $1.32½; in barrels, $1.55.

STARCH.—The starch market was rather dull during the past week. Contract shipments continue to go forward to the paper mills in fair volume. Prices are holding to schedule. Special paper making starch is quoted at $3.72 per 100 pounds, in bags, and at $3.99 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Trading in the sulphate of alumina market was restricted. The contract movement, however, was fairly heavy. Prices remain unchanged. Commercial grades are quoted at from $1.40 to $1.55, and iron free at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues to display a steady trend. Sulphur is still quoted at $18 per ton, at mine, on orders of 1,000 tons, or over, on yearly contracts, and at $20 per ton for any smaller quantity over that period. On spot and nearby car loads, the quotation is $21 per ton.

TALC.—Most of the business transacted in the talc market was along routine lines. Prices are generally holding to previously quoted levels. Domestic talc is selling at from $16 to $18 per ton, at mine, while imported talc is offered at from $18 to $20 per ton, in bags, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	11.00	@	38.00
Bonds	9.00	@	53.25
Writings—			
Extra Superfine	14.00	@	32.00
Superfine	14.00	@	32.00
Tub sized	10.00	@	15.00
Engine sized	8.00	@	11.00
Book, Cased—			
S. & S. C.	6.00	@	7.50
M. F.	5.75	@	7.00
Coated and Enamel	7.50	@	12.00
Lithograph	7.50	@	12.00
Tissues—Per Ream—			
White No. 1	.75	@	1.00
Anti-Tarnish	1.35	@	1.90
Colored	1.00	@	2.00
White No. 2	.75	@	.80
Kraft	1.00	@	1.10
Manila	.75	@	.80
Kraft—			
No. 1 Domestic	5.75	@	6.25
No. 2 Domestic	3.75	@	5.00
Southern	3.75	@	4.75
Imported	6.50	@	7.00
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.75	@	5.25
No. 2 Wood	4.00	@	4.50
Butchers	3.75	@	4.25
Fibre Papers—			
No. 1 Fibre	5.00	@	5.50
No. 2 Fibre	4.75	@	5.25
Common Bogus	2.75	@	3.00
Screenings	3.00	@	3.25
Card Middles	4.00	@	5.00
Glassine—			
Bleached, basis 25 lbs.	13.00	@	16.00
Bleached, basis 20 lbs.	15.00	@	16.00
(Delivered New York)			
News, per ton—			
Rolls, contract	62.00	@	—
Rolls, spot	62.00	@	—
Sheets	67.00	@	—
Side Runs	47.00	@	52.00
Boards—per ton—			
News	37.50	@	—
Straw	50.00	@	—
Chip	35.00	@	—
Binders' Boards	65.00	@	70.00
Wood Pulp	90.00	@	95.00
65 Test Jute Liner	37.50	@	40.00
85 Test Jute Liner	42.50	@	45.00
Sgl. Mla. Ll. Chip.	47.50	@	50.00

Mechanical Pulp

(On Dock)

No. 1 Imported—			
Moist	28.00	@	30.00
Dry	30.00	@	32.00
(F. o. b. Mill)			
No. 1 Domestic	26.00	@	30.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—			
Bleached	3.00	@	4.25
Easy Bleaching	2.70	@	2.90
No. 1 strong unbleached	2.40	@	2.65
Mitscherlich unbleached	2.50	@	2.85
No. 2 strong unbleached	2.35	@	2.50
No. 1 Kraft	1.65	@	2.15
No. 2 Kraft	1.55	@	1.85
Sulphate—			
Bleached	3.40	@	3.85
(F. o. b. Pulp Mill)			
Sulphite (Domestic)—			
Bleached	3.00	@	4.75
Easy Bleaching Sulphite	2.55	@	2.85
News Sulphite	2.35	@	2.60
Mitscherlich	3.00	@	3.25
Kraft (Domestic)	2.10	@	3.30
Soda Bleached	2.90	@	3.20

Domestic Rags

New Rags

(Prices to Mill f. o. b N. Y.)

Shirt Cuttings—			
New White, No. 1	9.00	@	9.50
New White, No. 2	7.00	@	7.50
Silesias No. 1	7.25	@	7.50
New Unbleached	10.00	@	10.50
New Blue Prints	5.25	@	5.50
New Soft Blacks	5.25	@	5.75
Blue Overall	7.00	@	7.50
Washables	4.50	@	5.00
Fancy	5.25	@	5.75
Mixed Khaki Cuttings	4.75	@	5.25
Pink Corset Cuttings	8.00	@	8.50
O D. Khaki Cuttings	5.15	@	5.75
Men's Corduroy	3.75	@	4.25
New Mixed Blacks	3.50	@	3.75
Old Rags			
White, No. 1—			
Repacked	5.50	@	6.00
Miscellaneous	4.50	@	5.00
White, No. 2—			
Repacked	3.00	@	3.50
Miscellaneous	2.50	@	2.75
St. Soiled, White	2.00	@	2.15
Thirds and Blues—			
Repacked	2.25	@	2.50
Miscellaneous	1.75	@	2.00
Black Stockings	3.25	@	3.75
Roofing Rags—			
Cloth Strippings	1.50	@	1.60
No. 1	1.50	@	1.60
No. 2	1.15	@	1.25
No. 3	1.10	@	1.20
No. 4	1.00	@	1.10
No. 5A	.90	@	1.05

Foreign Rags

New Rags

New Dark Cuttings	2.50	@	3.00
New Mixed Cuttings	2.75	@	3.25
New Light Silesias	7.00	@	7.50
Light Flannelettes	7.25	@	7.75
Unbleached Cuttings	9.75	@	10.25
New White Cuttings	9.00	@	9.50
New Light Oxfords	7.00	@	7.50
New Light Prints	5.25	@	5.75
Old Rags			
No. 1 White Linens	7.25	@	8.00
No. 2 White Linens	5.75	@	6.75
No. 3 White Linens	4.75	@	5.25
No. 4 White Linens	3.00	@	3.50
No. 1 White Cotton	5.50	@	6.50
No. 2 White Cotton	2.75	@	3.75
No. 3 White Cotton	3.00	@	4.00
No. 4 White Cotton	1.95	@	2.15
Extra Light Prints	2.75	@	3.00
Ord. Light Prints	2.25	@	2.50
Med. Light Prints	1.95	@	2.10
Dutch Blue Cottons	2.15	@	2.30
French Blue Linens	2.65	@	2.75
German Blue Linens	2.30	@	2.50
German Blue Cottons	2.00	@	2.10
Checks and Blues	1.85	@	2.00
Lindsay Garments	1.60	@	1.70
Dark Cottons	1.15	@	1.25
Old Shopperies	1.10	@	1.20
New Shopperies	1.20	@	1.25
French Blues	2.00	@	2.10

Old Rope and Bagging

(Prices to Mill f. o.b. N. Y.)

Gunny No. 1—			
Foreign	1.65	@	1.75
Domestic	1.65	@	1.75
Wool Tares, light	1.60	@	1.65
Wool Tares, Heavy	1.60	@	1.70
Bright Bagging	1.60	@	1.70
Small Mixed Rope	1.25	@	1.40
Manila Rope—			
Foreign	3.25	@	3.40
Domestic	3.50	@	3.75
New Burlap Cut	2.50	@	2.75
Hessian Jute Threads—			
Foreign	3.50	@	4.00
Domestic	3.25	@	3.50

Old Waste Papers

(F. o. b. New York)

Shavings—			
Hard, white, No. 1	3.00	@	3.25
Hard, white, No. 2	2.40	@	2.55
Soft, white, No. 1	2.65	@	2.75
White envelope cuttings	2.90	@	3.10
Flat Stock—			
Stitchless	1.40	@	1.50
Overissue Mag.	1.40	@	1.50
Solid Flat Book	1.30	@	1.40
Crumpled No. 1	1.00	@	1.10
Solid Book Ledger	2.00	@	2.10
Ledger Stock	1.30	@	1.40
New B. B. Chips	.35	@	.45
Manilas—			
New Env. Cut.	2.40	@	2.60
New Cuttings	1.50	@	1.75
Extra No. 1 old	1.25	@	1.35
Print	.60	@	.65
Bogus Wrapper	.60	@	.65
Container	.40	@	.50
Old Kraft Machine—			
Compressed bales	1.50	@	1.60
News—			
No. 1 White News	1.77	@	1.87
Strictly Overissue	.50	@	.55
Strictly Folded	.40	@	.45
No. 1 Mixed Paper	.22	@	.27
Common Paper	.15	@	.20

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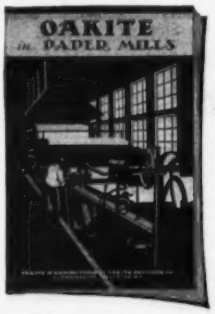

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Twines
(F. o. b. Mill)

Cotton—			
No. 1	.39	@	.40
No. 2	.37	@	.38
No. 3	.36	@	.37
B. C., 18 basis	.38	@	.40
A. B. Italian, 18 basis	.48	@	.53
Finished Jute—			
Dark 18 basis	.24	@	.25
Light 18 basis	.27	@	.28
Jute Wrappings, 3-6 Ply—			
No. 1	.19	@	.21
No. 2	.18	@	.20
Tube Rope—			
4-ply and larger	.16	@	.17
Fine Tube Yarn—			
5-ply and larger	.21	@	.25
4-ply	.25	@	.29
3-ply	.28	@	.32
Unfinished India—			
Basis	.13	@	.14
Paper Makers Twine			
Balls	.11	@	.12
Box Twine, 2-3 ply	.15	@	.17
Jute Rope	.17	@	.19
Amer. Hemp, 6	.29	@	.31
Sisal Hay Rope—			
No. 1 Basis	.16	@	.18
No. 2 Basis	.14	@	.16
Sisal Lath Yarn—			
No. 1	.14	@	.16
No. 2	.12	@	.14
Manila Rope	.22	@	.24

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine writing	.18	@	.24
No. 1 fine writing	.14	@	.18
No. 2 fine writing	.12	@	.14
No. 3 fine writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¾
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	5.00	@	5.50
Southern Kraft	3.75	@	4.00
No. 2 Kraft	3.75	@	4.00
Wood Tag Boards	.04¼	@	.06¾
Sulphite Sreenings	.03	@	.03¼
Manila Tissue—			
24x36 Sheet	.07	@	.07¼
White Tissue—			
20x30 Sheet	.07¼	@	.07½
(Delivered Central Territory)			
News, per ton—			
Rolls, contract	62.00	@	—
Sheets	67.00	@	—
Boards, per ton—			
Plain Chip	37.50	@	42.50
Solid News	47.50	@	—
Solid News	40.00	@	45.00
Manila Lined Chip	50.00	@	55.00
Container Lined—			
85 Test	65.00	@	70.00
100 Test	70.00	@	—

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	2.35	@	2.40
White Env. Cut-			
No. 1 Soft Shavings	2.10	@	2.15
No. 1 Mixed	.30	@	.35
No. 2 Mixed	.25	@	.35
Ledger & Writings	1.25	@	1.35
Solid Books	1.05	@	1.10
Blanks	1.60	@	1.65
Krafts	1.30	@	1.40
New Kraft Cuts	1.50	@	1.70
Manila Envelope Cuttings	1.65	@	1.70
Ex. No. 1 Manila	1.30	@	1.45
Print Manila	.45	@	.50
Folded News (over-issue	.40	@	.45
Old Newspapers—			
No. 1	.35	@	.40
No. 2	.30	@	.35
Mixed Papers—			
No. 1	.30	@	.35
Roofing Stocks—			
(F. o. b. Chicago, net cash)			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.05	@	.40
Ledgers	.08	@	.40
Writings—			
Superfine	.12½	@	.18
Extra fine	.18	@	.22
Fine	.17	@	.26
Fine, No. 2	.15	@	.25
Fine, No. 3	.09	@	.20
Book, M. F.	.05	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.09	@	.16
Coated Lithograph	.07	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.07	@	.09
Manila Sul., No. 1	.04	@	.05½
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06¾
No. 2 Kraft	.03¾	@	.04¾
Southern Kraft No. 1	—	@	.03¾
Southern Kraft No. 2	—	@	.03¼
Common Bogus	.03½	@	.04
(Delivered Philadelphia)			
News Print Rolls	62.00	@	—
Straw Board	52.50	@	70.00
News Board	37.50	@	38.50
Chip Board	32.50	@	35.00
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	75.00		
No. 2, per ton	70.00		
Carload lots	68.00	@	70.00
Tarred Felts—			
Regular	55.50	@	57.00
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.10½	@	.11
New White, No. 2	.07	@	.07½
Light Silesias	.07	@	.07½
Silesias, No. 1	.07	@	.09
Black Silesia, soft	.05	@	.05½
New Unbleached	.10½	@	.11
Washable, No. 1	.04½	@	.05
Blue Overall	.07½	@	.08
Cottons—According to grades—			
Washable, No. 2	.03	@	—
New Blue	.03	@	.03½
Fancy	.05½	@	.06
New Black Soft	.05	@	.05¾
New Light Seconds	.02½	@	.03
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O. D.	.05½	@	.05¾
No. 2 Mixed	.04½	@	.04¾
Corduroy	.03	@	.03½
New Canvas	.08½	@	.09
New Black Mixed	.03¾	@	.04½

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.50	@	1.60
Domestic	1.75	@	—
Manila Rope	3.50	@	4.00
Sisal Rope	1.50	@	—
Mixed Rope	1.10	@	1.25
Scrap Burlaps—			
No. 1	1.50	@	1.60
No. 2	1.10	@	1.20
Wool Tares, heavy	3.00	@	—
Mixed Strings	1.15	@	1.25
No. 1, New Light Burlap	2.50	@	2.75
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	2.65	@	2.75
No. 2 Hard White	2.30	@	2.50
No. 1 Soft White	2.25	@	2.50
No. 2 Soft White	1.40	@	1.60
No. 1 Mixed	.90	@	1.00
No. 2 Mixed	.60	@	.70
Solid Ledger Stock	1.55	@	1.65
Writing Paper	1.05	@	1.25
No. 1 Books, heavy	1.00	@	1.20
No. 2 Books, light	.90	@	1.00
No. 1 New Manila	2.15	@	2.30
No. 1 Old Manila	1.50	@	1.60
Print Manila	.50	@	.60
Container Manila	.45	@	.50
Old Kraft	1.35	@	1.40
Common Paper	.25	@	.35
No. 1 Mixed Paper	.25	@	.30
Straw Board, Chip	.35	@	.40
Binders Board, Chip	.35	@	.45
Overissue News	.45	@	.50
Old Newspaper	.25	@	.30

Domestic Rags (Old)

White No. 1—			
Repacked	4.25	@	4.50
Miscellaneous	3.50	@	3.75
M. G.	6.00	@	—
Thirds and Blues—			
Repacked	2.00	@	2.25
Miscellaneous	1.60	@	1.80
Black Stockings (Export)	3.90	@	4.25
Roofing Stock—			
Foreign No. 1	1.25	@	1.30
Repacked	.80	@	.90
No. 2	.70	@	.75
No. 3 (Roofing)	.30	@	.40
No. 4	.30	@	.40
No. 5A	.70	@	.75
B	.40	@	.60
C	.25	@	.30

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.12½
Rag content	.15	@	.30
All rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11½
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04¾	@	.06
No. 2 Kraft	.03¾	@	.05
(Less car-freight to Boston)			
Southern Kraft	.03¼	@	.04¾
(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)			
Common Bogus	.02	@	.02¾
Delivered New England points			
News Print Rolls	61.50	@	—
Straw Boards, rolls	.009		52.50
Straw Board in Sheets, basis 35s to 70s	54.50	@	55.00
Filled News Board	37.50	@	40.00
Chip Board	35.00	@	37.50
Single Manila Lined Chip	47.50	@	52.50
Single White, Patent Coated Newsboard Bender	65.00	@	80.00
Wood Pulp Board	75.00	@	80.00
Binder Boards	70.00	@	75.00
(F. o. b. Mill)			
Tarred Felts—			
Regular, carload lots	65.00	@	—

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Hard White	3.25	@	3.75
No. 2 Hard White	2.60	@	2.90
No. 1 Soft White	2.50	@	2.60
No. 1 Mixed	1.10	@	1.15
No. 2 Mixed	.85	@	.90
Solid Ledger Stock	—	@	2.25
No. 1 Books, Heavy	1.30	@	—
No. 1 Books, Light	1.05	@	—
Manila Env. Cuttings	2.00	@	2.25
No. 1 Old Manila	.90	@	1.00
White Blank News	1.50	@	1.60
Old Kraft	1.35	@	1.45
Print Manila	.75	@	.80
No. 1 Mixed Paper	.20	@	—
Overissue News	.40	@	.50
Old Newspapers	.35	@	.40
Box Board, Chip	.45	@	.50
Corrugated Boxes	—	@	.40

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	1.50	@	1.65
Domestic	1.50	@	—
Manila Rope—			
Foreign	—	@	3.00
Domestic	3.50	@	—
Transmission Rope	2.25	@	2.40
Mixed Strings	.90	@	1.00
Jute Wool Strings	.90	@	1.00
Jute Carpet Threads	1.05	@	1.15
Scrap Burlaps	1.25	@	1.40
Scrap Sisal	1.50	@	1.75
Scrap Sisal for shredding	1.75	@	2.00
Wool Tares, heavy	1.60	@	—
New Burlap Cutting	1.75	@	2.00
Australian Wool Pouches	2.50	@	3.00

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New White No. 1.	.08	@	.08½
Silesias No. 1	.06	@	.06¼
New Unbleached	—	@	.09¼
Fancy	.04	@	.04½
Washable	.04	@	.04½
Cottons—According to grades			
Blue Overalls	.06¼	@	.06¾
New Black, soft	.04	@	.04¾
Khaki Cuttings	.04	@	.04¾
O. D. Khaki	.05	@	—
Corduroy	.03	@	.03½
New Canvas	.08	@	.08½

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	4.75	@	5.25
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Twos and Blues	2.75	@	3.00
Thirds and Blues—			
Repacked	2.25	@	2.50
Miscellaneous	1.75	@	1.90
Black Stockings	—	@	4.00
Roofing Stock—			
No. 1	1.25	@	1.50
No. 2	.90	@	1.00
No. 3	.85	@	.90
No. 4	.75	@	.85

Foreign Rags
(F. o. b. Boston)

Dark Cottons	.85	@	.95
New No. 1 Shirt Cuttings	8.50	@	9.00
Dutch Blues	2.00	@	2.12½
Lace Curtains	4.50	@	4.75
New Checks & Blues	4.25	@	4.60
Old Fustians	1.90	@	2.00
Old Linsey Garments	1.20	@	—

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.10¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.11¼	@	—
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (carloads)	7.50	@	—
No. 2 M. F. (carloads)	7.25	@	—
No. 3 M. F. (carloads)	7.00	@	—
No. 1 S. C. (carloads)	8.00	@	—
No. 2 S. C. (carloads)	7.75	@	—
No. 3 S. C. (carloads)	7.50	@	—
No. 1 Coated and Litho	13.25	@	—
No. 2 Coated and Litho	12.25	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.50	@	—
Wrapping—			
Rag Brown	4.95	@	—
White Wrap	5.25	@	—
"B" Manila	5.00	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.90	@	—
White, No. 2	2.00	@	2.25

(Delivered Toronto)

News, per ton—			
Rolls (contract)	61.50	@	62.00
Sheets	67.00	@	—

Pulp
(F. o. b. Mill)

Ground Wood	30.00	@	32.00
Sulphite easy bleaching	60.00	@	—
Sulphite news grade	60.00	@	—
Sulphite, bleached	72.50	@	75.00
Sulphate	60.00	@	—

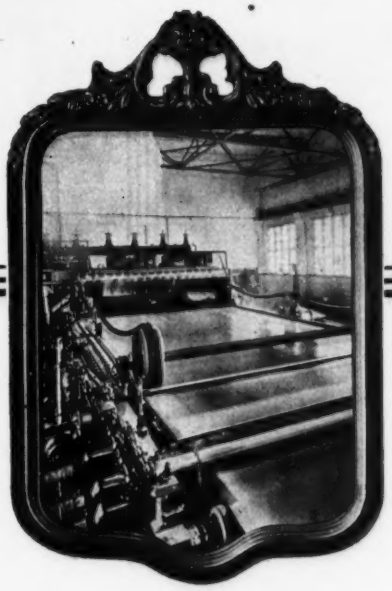
Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	3.00	@	—
Soft White Book Shavings	2.85	@	—
White Blk. News	1.60	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.40	@	—
Light and Crumpled Book Stock	1.25	@	—
Ledgers and Writ-			
Solid Ledgers	1.50	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	1.00	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.85	@	—
Strictly Folded	.85	@	—
No. 1 Mixed Paper	.65	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09¼	@	.10
Fancy Shirt Cuttings	.06	@	.06¼

Advertising matter paged consecutively with text, has been removed here to lessen the bulk of this volume.



The Mirror!

A SHEET of paper reflects the quality of the wire on which it was made!

A smooth, even surface---unbroken by wire marks or holes and of uniform thickness throughout---indicates a wire of accurate weave which runs straight and smooth on the machine!

Choose a wire which will reflect, in the paper you make, the high quality which will hold customers and bring new ones.

Many of the world's leading paper makers ---mills making the best of every grade from tissue to board---use Tyler Fourdrinier Wires.

Tyler Wires have an earned reputation for running straight and true---for producing high-grade paper! They assure uniform dewatering and even deposition of pulp. They give long, dependable service!

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The W. S. Tyler Company
Cleveland, Ohio

TYLER WIRES

PAPER TRADE JOURNAL
ESTABLISHED 1872

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

FIFTY-NINTH YEAR

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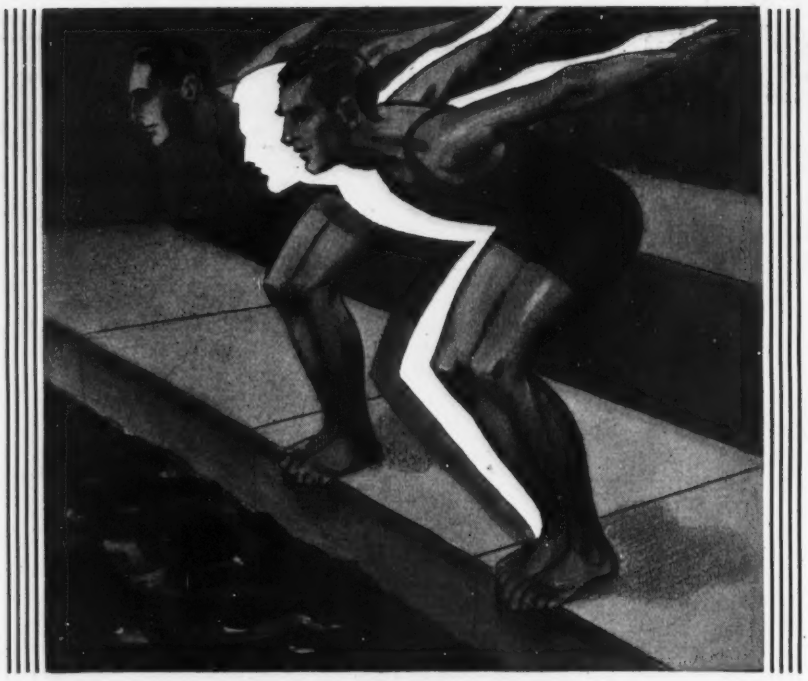

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